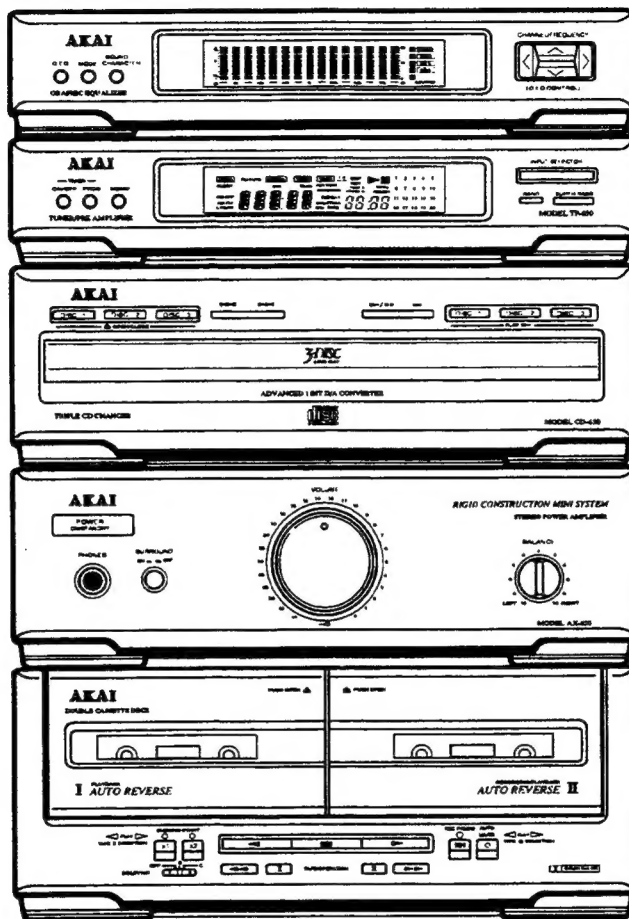


AKAI SERVICE MANUAL



SYSTEM MX650

COMPACT
disc
DIGITAL AUDIO

MINI COMPONENT SYSTEM

MX-550

(AX-550/CD-650/TP-550)

MX-650

(AX-650/CD-650/TP-650)

TP-550/650

AX-550/650

CD-650

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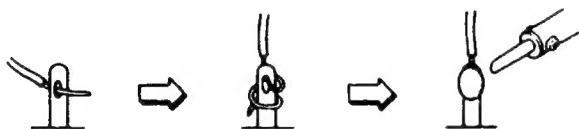
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★ SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identified by the (*) symbol are critical for safety. Replace them only with the parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation. These must also be replaced only with the specified replacements.
Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
 - 1) Wires covered with PVC tubing
 - 2) Double insulated wires
 - 3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
 - 1) Insulation Tape
 - 2) PVC tubing
 - 3) Spacers (insulating barriers)
 - 4) Insulation sheets for transistors
 - 5) Plastic screws for fixing micro switches
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap the ends of the wires securely around the terminals before soldering.



6. Make sure that wires do not contact heat producing parts (heat sinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locations.
9. Make sure that foreign objects (screws, solder drop-lets, etc.) do not remain inside the set.

MAKE YOUR CONTRIBUTION TO PROTECT THE ENVIRONMENT

Used batteries with the ISO symbol for recycling as well as small accumulators (rechargeable batteries), mini-batteries (cells) and starter batteries should not be thrown into the garbage can. Please leave them at an appropriate depot. All other household batteries can be thrown out with the household waste.



SAFETY CHECK AFTER SERVICING

After servicing, make measurements of leakage-current or resistance in order to determine that exposed parts are acceptably insulated from the supply circuit.

The leakage-current measurement should be done between accessible metal parts (such as chassis, ground terminal, microphone jacks, signal input/output connectors, etc.) and the earth ground through a resistor of 1500

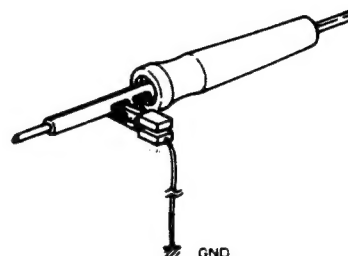
ohms paralleled with a 0.15 μ F capacitor, under the unit's normal working conditions.

The leakage-current should be less than 0.5 mA rms AC. The resistance measurement should be done between accessible exposed metal parts and power cord plug prongs with the power switch (if included) "ON". The resistance should be more than 2.2 M Ohms.

PRECAUTIONS IN REPAIRING

When repairing or adjusting the unit, please note the following points.

1. Do not put excessive pressure on the mechanical part (operation part), including the pick-up block, as extremely high mechanical precision is required in these parts.
2. When the base is removed for repair or adjustment, make sure that there are no metal objects in the narrow gap between the P.C. board or the mecha parts and the base.
3. The Micro-Computer and the CD signal processing ICs can be damaged by static electricity or leakage from a soldering iron during repairing. While soldering, please take the precautions against leakage as in the illustration.



4. Do not loosen any screws in the pick-up block. When handling the pick-up block, please refer to the points to NOTE when replacing the pick up block.
5. To avoid hazardous invisible Laser Radiation, DO NOT look at the Laser Beam (Objective lens) directly.
6. On models for some countries, laser warning labels are affixed on the unit and inside of the unit, as shown below. For your safety, read these labels carefully when repairing or adjusting the unit.

[EUROPE, SCANDINAVIA, UK and AUSTRALIA]

CLASS 1 LASER PRODUCT
KLASSE 1 LASER PRODUKT
LUOKAN 1 LASER LAITE
KLASS 1 LASER APPARAT

Label affixed on the rear panel of the unit

CAUTION : INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.
ADVARSEL : USYNLIG LASERSTRÅLING VED ÅBNING. HØR SIKKERHEDSÅRBEJDEDE ER UDDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARO : AVATTAESSA JA SUOJALLUKUTUS OHJET. TAESSA OLET ALLTIMA NAKYMATTOALLE LASERSATEI LYLLE ALA KATSO SATEESEEN.
WARNING : OSYNLIG LASERSTRÅLING NAR DENNA DEL AR OPPNAD OCH SPARREN AR URKOPPLAD. BETRAKTA EJ STRALEN.

Label affixed on the reverse side of the rear panel of the unit

★ INFORMATIONS

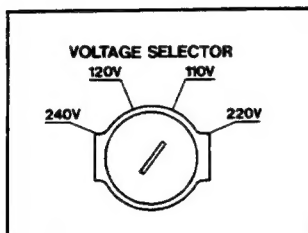
SYMBOLS FOR PRIMARY DESTINATION

Alphabet indicates the destination of the units as listed below.

| Symbol | Principal Destination |
|-----------|-----------------------|
| B | UK |
| E | Europe (except UK) |
| S | Australia |
| V | Germany |
| U | Universal |
| Y* | Custom version |

VOLTAGE CONVERSION (**U** Model only)

Before connecting the power cord, set the VOLTAGE SELECTOR located on the rear panel of the AX-550/650 so that the correct voltage for your area is indicated.



PRECAUTION BEFORE REPAIRING THE UNIT

[ABOUT THE POWER SUPPLY]

When repairing, refer to the following procedures to supply the power to each unit.

• TP-550/650

Connect the two black and red CONTROL CONNECTORS to the AX-550/650. Then while pressing the TIMER ON/OFF and TIMER MEMORY buttons on the front panel simultaneously, connect the AC POWER CORD on the AX-550/650 to the AC power outlet.

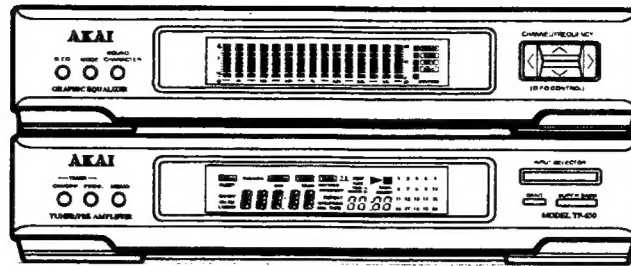
• CD-650

Power for the CD-650 is supplied from the AX-550/650 through the TP-550/650.

Therefore, when repair of the CD-650 is necessary, repair should be made together with the AX-550/650 and TP-550/650.

• AX-550/650

While pressing the ► and ◄ buttons simultaneously on the AX-550/650, connect the AC power cord to the AC power outlet.



MODEL TP-650

TUNER/PRE AMPLIFIER

MODEL TP-550/650

SPECIFICATIONS

Tuner section

FM

| | |
|---------------------------|---|
| Tuning frequency range .. | 87.5 to 108MHz |
| Usable sensitivity | 13.2dBf [E/U], 17.2dBf [V] (IHF, 3% THD) |
| Quieting sensitivity | |
| Mono | 17.2dBf [E/U], 21.2dBf [V] |
| Stereo | 31.2dBf [E/U], 35.2dBf [V] |
| S/N ratio | |
| Mono | 70dB [E/U], 65dB [V] (IHF) |
| Stereo | 60dB (IHF) |
| Frequency response | 30Hz to 15kHz (± 1 dB) |
| Total harmonic distortion | |
| Mono | 0.5% (at 1kHz) |
| Stereo | 0.3% [E/U], 0.7% [V] (at 1kHz) |
| Selectivity | 55dB (± 400 kHz) |
| Image rejection | 50dB |
| Stereo separation | 45dB (at 1kHz) |
| Capture ratio | 2dBf |
| AM suppression | 60dB |
| Spurious rejection | 55dB |
| IF rejection | 90dB |

MW

| | |
|---------------------------|----------------------------|
| Tuning frequency range .. | 531 to 1602kHz (9kHz step) |
| 530 to 1710kHz [U] | (10kHz step) |
| Usable sensitivity | 500 μ Vm |
| S/N ratio | 36dB |
| Selectivity | 15dB |
| Image rejection | 37dB |
| IF rejection | 40dB |

LW

| | |
|---------------------------|---|
| Tuning frequency range .. | 144 to 351kHz [E/U], 144 to 288kHz [V] (1kHz step) |
| Usable sensitivity | 800 μ Vm |
| S/N ratio | 28dB |
| Selectivity | 17dB |
| Image rejection | 33dB |
| IF rejection | 40dB |

Amplifier Section

| | |
|---------------------------------|--|
| Super bass effects | 6dB / 60Hz (SB-1) 12dB / 60Hz (SB-2) |
| Tone control (TP-550 only) | |
| BASS | ± 8 dB / 100Hz |
| TREBLE | ± 8 dB / 10kHz |
| Graphic Equalizer (TP-650 only) | |
| Center frequency | 63Hz / 160Hz / 400Hz / 1kHz / 2.5kHz / 6.3kHz / 16kHz |
| Control range | ± 10 dB (2dB step) |
| S/N ratio | 97dB (A-weight) |
| Total harmonic distortion | 0.027% (1kHz, flat) |
| Timer | Quartz lock daily timer (Timer REC / Wake-up / Sleep) |

Dimensions

| | |
|--------------|-------------------------------|
| TP-550 | 270 (W) x 112 (H) x 310 (D)mm |
| TP-650 | 270 (W) x 112 (H) x 302 (D)mm |

Weight

| | |
|--------------|-------|
| TP-550 | 2.0kg |
| TP-650 | 2.1kg |

Standard accessories

| | |
|----------------------------|----|
| FM long wire antenna | x1 |
| AM loop antenna | x1 |
| Plug adaptor | x1 |

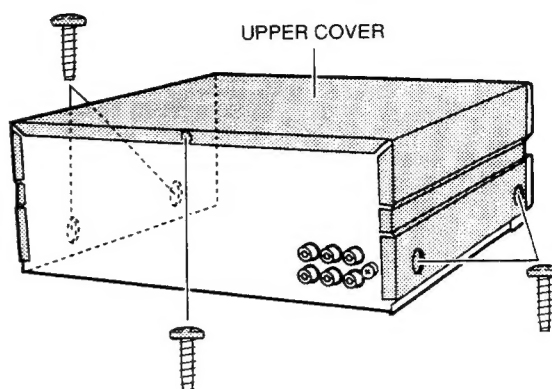
TP-550/650

* For improvement purposes, specifications and design are subject to change without notice.

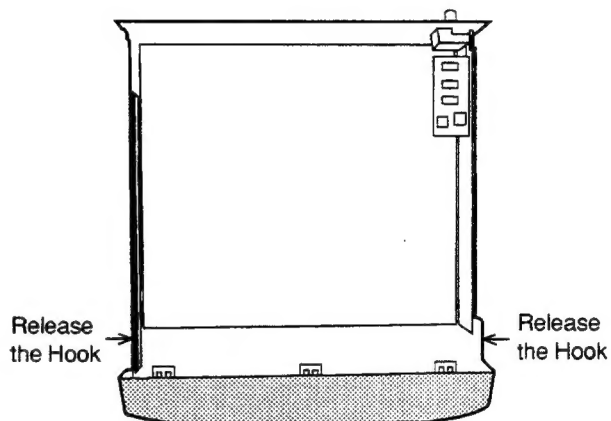
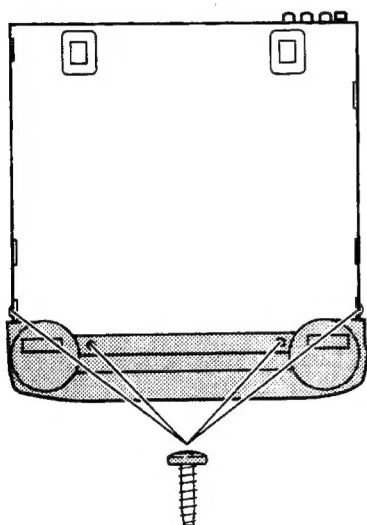
1. DISASSEMBLY

In case of trouble etc., necessitating dismantling, please dismantle in the order shown in the illustrations. Reassemble in the reverse order.

1. Removal of UPPER COVER



2. Removal of FRONT PANEL



II. PRINCIPAL PARTS LOCATION

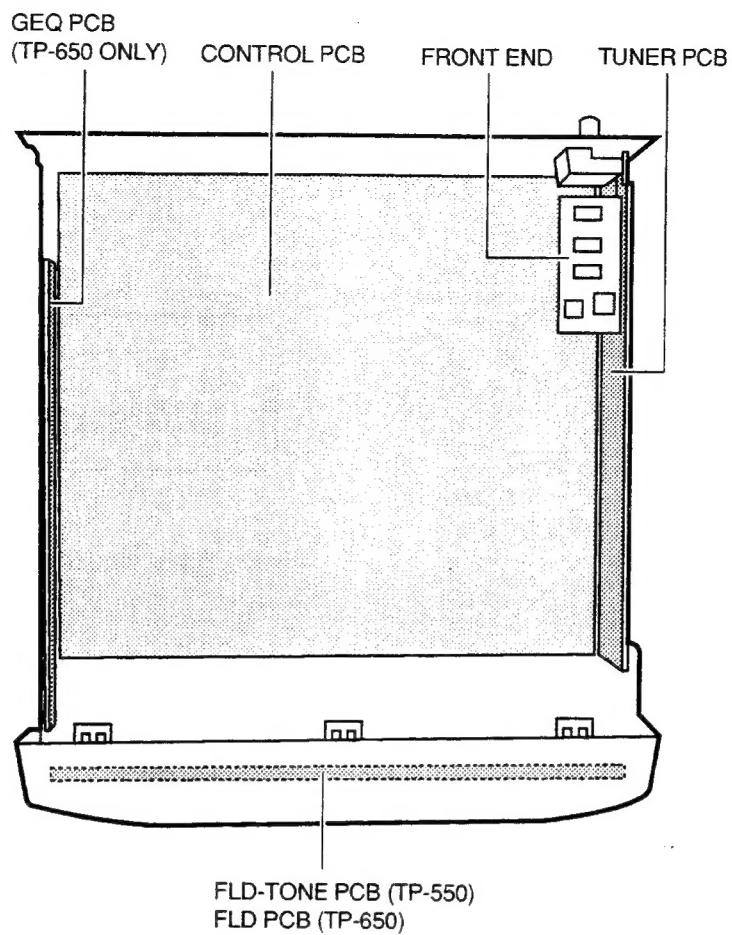


Fig.2-1 Top view

III.ADJUSTMENT

3-1.INSTRUMENT CONNECTIONS

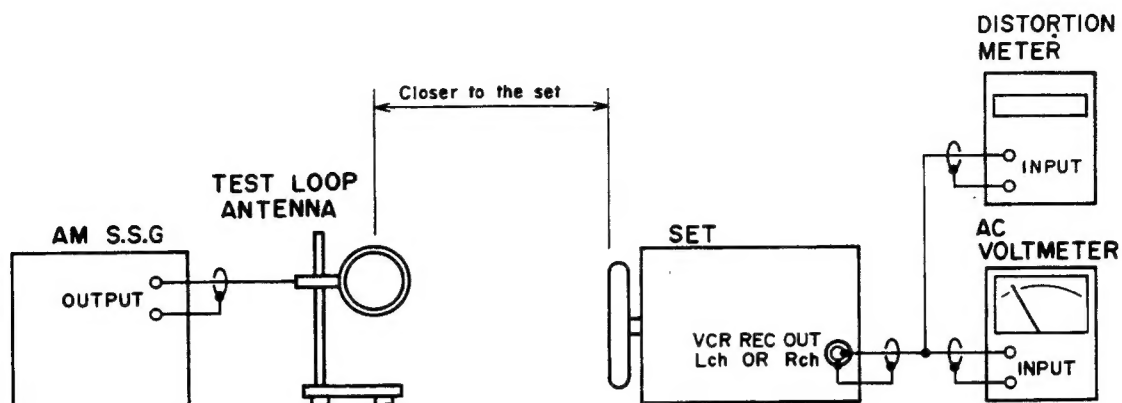


Fig.3-1 Instrument Connection of AM Adjustment

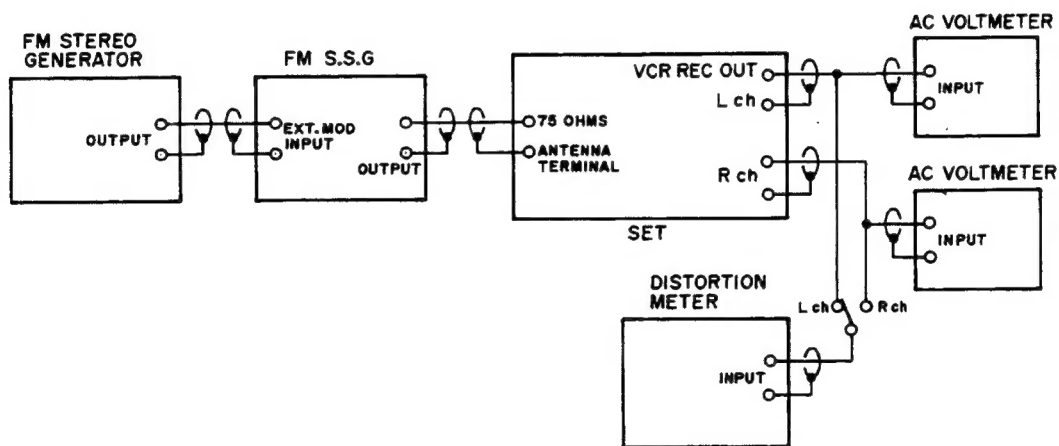


Fig.3-2 Instrument Connection of FM Adjustment

NOTE:

Before making adjustment, please set the input to "TUNER" mode by pressing the input SELECTOR button on the TP-550/650, then select the tuner band with the BAND button according to the adjustment procedure.

3-2. ADJUSTMENT

NOTE: 1. Set the S.S.G. to 1kHz, 75kHz deviation for **U**, **S**, **B** or **E** model, 1 kHz, 40 kHz deviation for **V** model.

| STEP | ADJUSTMENT ITEM |
|------|--------------------------|
| 1. | SSG FREQ. & OUTPUT LEVEL |
| 2. | SET Tuning FREQ. |
| 3. | ADJ. Part |
| 4. | REMARKS (•) & RESULT (*) |

Test Point Adjustment Part

LW

2 LW SENSITIVITY

- 162kHz, 75dBμ (Low) or 297kHz <288kHz>, 75dBμ (High)
- 162kHz PRESET 4 ch, 297kHz <288kHz> PRESET 7 ch.
- T202 (Low), VC202 (High)
- Connect the milli-voltmeter to VCR/REC OUT.
*Maximum output level.
*For best result, repeat Low and High adjustments several times.

NOTE: 1. Set the S.S.G to 1kHz 30% modulation on each adjustment.
2. Frequencies indicated in < > are for the **V** model.

1 LW OSC

-
- 351kHz <288kHz> (preset 10 ch)
- T204
- Connect the Digital DC Voltmeter between TP1 and GND.
*8.2 + 0.1V <5.75 + 0.1V>.

FM

3 DISTORTION (STEREO)

- 98.0MHz, 60dBμ (STEREO L or R channel only)
- 98.0MHz
- IFT (FRONT END)
- Connect the distortion meter to VCR/REC OUT.
*Minimum Distortion

2 TUNING LED

- 98.0MHz, 22dBμ (MONO).
- 98.0MHz
- Tuning LED on the front panel, VR101.
- *Tuning LED is lit.

1 CENTER VOLTAGE

- 98.0MHz, 60dBμ (MONO)
- 98.0MHz
- T101
- Connect the DC Digital Voltmeter to both ends of R108.
*0 + 50mV

4 STEREO SEPARATION

- 98.0MHz, 60dBμ (STEREO L or R channel only)
- 98.0MHz
- VR102
- Connect the milli-voltmeter to VCR/REC OUT.
*Minimum output level for opposite channel.

AM

NOTE: Set the S.S.G to 1kHz 30% modulation on each adjustment.

2 AM (MW) SENSITIVITY

- 603kHz, 70dBμ (Low) or 1,404kHz, 70dBμ (High)
- 603kHz (Low), PRESET 8 ch
1,404kHz (High), PRESET 7 ch
- T201 (Low), VC201 (High)
- Connect the milli-voltmeter to VCR/REC OUT.
*Maximum output level.
*For best result, repeat Low a High adjustments several times.

1 AM (MW) OSC

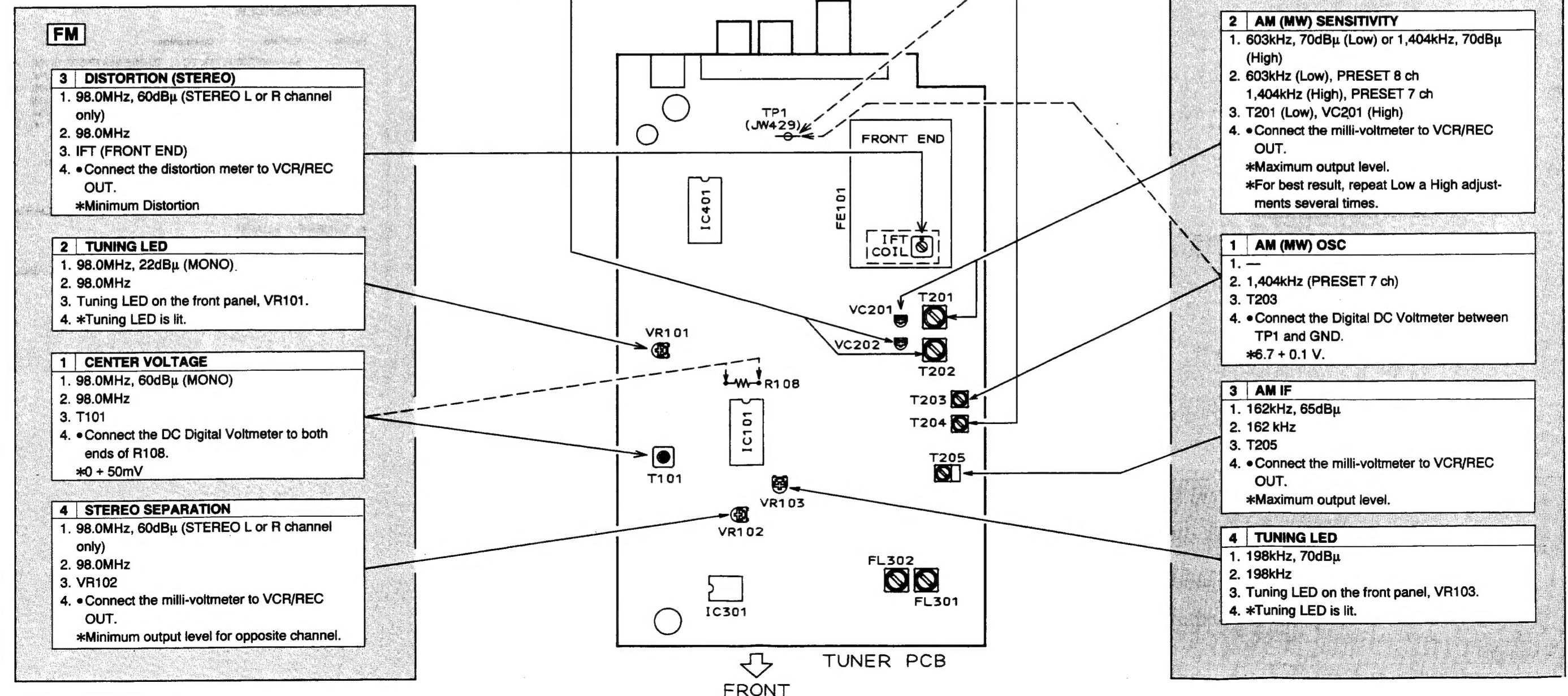
-
- 1,404kHz (PRESET 7 ch)
- T203
- Connect the Digital DC Voltmeter between TP1 and GND.
*6.7 + 0.1 V.

3 AM IF

- 162kHz, 65dBμ
- 162 kHz
- T205
- Connect the milli-voltmeter to VCR/REC OUT.
*Maximum output level.

4 TUNING LED

- 198kHz, 70dBμ
- 198kHz
- Tuning LED on the front panel, VR103.
- *Tuning LED is lit.



IV. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of eachpart. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

| Ref. No. | Part No. | Description |
|----------|---------------|--------------------|
| 1 | BH-T2023A320A | HEAD BASE BLOCK |
| 2 | HP-H2206A010A | HEAD R/P PR4-8FU C |
| 3 | ZS-477876 | PAN20×03STL CMT |
| 4 | ZS-536488 | BID20×08STL CMT |
| 5 | ZG-402895 | SP CS ANGLE ADJUST |

SP (Service Parts) Classification
This number corresponds with the individual parts index number in that figure.

b) PC Board

6. MAIN PC BOARD

| Ref. No. | Part No. | Description |
|----------|-----------|------------------------------|
| IC1 | EI-324536 | IC HD14049BP |
| IC2 | EI-336801 | IC MB8841-564M |
| C1A | EC-338399 | C MMY V 223M 250AC [U,E,B,S] |
| C1B | EC-350949 | C MMY V 223M 250DC [J] |
| C1C | EC-338397 | C MMY V 223M 125AC [C,A] |
| X1 | EI-318384 | OSC X'TAL NC-18C |

Symbols for primary destination
[A] :AAL (U.S.A) [S] :SAA (Australia)
[B] :BEAB (England) [U] :U/T (Universal Area)
[C] :CSA (Canada)
[E] :CEE (Europe) [V] :VDE (Germany)
[J] :JPN (Japan) [Y] :Custom Version

SP (Service Parts) Classification
These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

1. RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

| Ref.No. | Part No. | Description |
|---------|-------------|--------------------------------|
| 1 | *EC-408691J | C DBL LAYER EECF5R5U105 |
| 2 | ED-408651J | D LED SEL2913K ORANGE |
| 3 | ED-307572 | D SILICON H 1S131 |
| 4 | ED-624903 | D SILICON H 1S2473 |
| 5 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| 6 | ED-372893 | D VARACTOR SVC321SPA A DBL |
| 7 | ED-397289J | D ZENER H HZS20-2 |
| 8 | ED-367576 | D ZENER H HZS5.6B2J |
| 9 | ED-389688J | D ZENER H HZS5B2 |
| 10 | ED-370786 | D ZENER H HZS9.1B2J |
| 11 | ED-346559 | D ZENER H HZ12B2L |
| 12 | ED-346560 | D ZENER H HZ12B3L |
| 13 | ED-337990 | D ZENER H HZ27-1L |
| 14 | ED-329058 | D ZENER H HZ5 C1 |
| 15 | ED-346531 | D ZENER H HZ7A2L |
| 16 | ED-351418 | D ZENER H HZ7B1L |
| 17 | ED-346534 | D ZENER H HZ7C1L |
| 18 | EE-408686J | FRONT END FE415-G10 |
| 19 | EH-364919 | COMP R RKC8BS 473J |
| 20 | EH-408650J | COMP R RYLS7J105 105J |
| 21 | EH-394759J | FILTER CE SFE10.7MS2GK-A [U,E] |
| 22 | EH-338338 | FILTER CE SFE10.7MS3GK-A [V] |
| 23 | EH-360924 | FILTER LC BP BPMB6A [V] |
| 24 | EH-405199J | FILTER LC LP K7-J1YD-0170 [V] |
| 25 | EH-408815J | FILTER LC LP 42B-5226-03 |
| 26 | EI-382660J | IC BA15218-DX |
| 27 | EI-387938J | IC HD74LS05P |
| 28 | EI-408673J | IC LA1851N |
| 29 | EI-408648J | IC LA3607 |
| 30 | EI-408647J | IC LC7522 |
| 31 | EI-408645J | IC LC866008A-*** MXA1GE1 |
| 32 | EI-354951 | IC LM7000N |
| 33 | EI-408675J2 | IC M38173M6-145FP MXA1TP3 |
| 34 | EI-213390 | IC NJM4558D |
| 35 | EI-400756J | IC NJM4558L-B |
| 36 | EI-408672J | IC S-80721AN |
| 37 | EI-302233 | IC TC4051BP |
| 38 | EI-332259 | IC TC4052BP |
| 39 | EI-200573 | IC TC4053BP |
| 40 | EI-408646J | IC XR1091ECP |
| 41 | EI-408674J | OSC CE CSB456F15 19.000KHZ |
| 42 | EI-408649J | OSC CE CST12.0MTW 12.000MHZ |
| 43 | EI-405327J | OSC CE CST6.00MGW 6.000MHZ |
| 44 | EI-368825M | OSC X'TAL C-002RX 32.768KHZ |
| 45 | EI-408814M | OSC X'TAL HC-49/U 7200KHZ |
| 46 | EM-408410J | IND FL BJ035GK DOUBLE |
| 47 | EM-408409J | IND FL 10-MT-44GK CHARACTER |
| 48 | EO-408689M | COIL DET 1 499HNAS0078Z10.7MHZ |
| 49 | EO-408687J | COIL IFT BCFAZ-024 |
| 50 | EO-363279 | COIL OSC 2 A7NRS-9857X 150.0UH |
| 51 | EO-352089 | COIL OSC 2 7BRS-9098X 580.0UH |
| 52 | EO-408808M | COIL VARI 2 MRHNF-45614A |
| 53 | EO-408809M | COIL VARI 2 MRZNF-45615A |
| 54 | *ER-326169 | R FUSE H S10 ERD2FC 1/4W 22R0G |
| 55 | *ER-331619 | R FUSE H S10 ERD2FC 1/4W 39R0G |
| 56 | *ER-318647 | R FUSE H S10 ERD2FC 1/4W 4R7J |
| 57 | *ER-318248 | R FUSE H S10 ERD2FC 1/4W 47R0G |
| 58 | *ER-386215J | R OMF H S12 FS 1W 220J |
| 59 | *ER-408692J | R OMF H S15 FS 2W 390J |
| 60 | ES-408641J | SW TACT EVQ 233 07K T05 |
| 61 | ES-362883 | SW TACT SKHLM |
| 62 | ET-403246J | DETECTOR HC-377 |
| 63 | ET-356336 | TR DTA114ES |
| 64 | ET-369248 | TR DTA114YS |
| 65 | ET-354370 | TR DTA124ES |
| 66 | ET-353897 | TR DTC114ES |
| 67 | ET-354371 | TR DTC124ES |
| 68 | ET-373392 | TR DTC124XS |
| 69 | ET-354364 | TR DTC143TS |
| 70 | ET-354414 | TR DTC144ES |

| Ref.No. | Part No. | Description |
|---------|------------|--------------------------------|
| 71 | ET-354094 | TR DTC144WS |
| 72 | ET-349458 | TR FET 2SK192A Y |
| 73 | ET-337759 | TR FET 2SK246 GR |
| 74 | ET-353899 | TR 2SA1317 S,T,U |
| 75 | *ET-366365 | TR 2SB1185 E,F |
| 76 | ET-400965J | TR 2SB1357 E,F T05 |
| 77 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| 78 | ET-361736 | TR 2SC3576 |
| 79 | ET-394735J | TR 2SC3792 T05 |
| 80 | ET-328265 | TR 2SC930 F |
| 81 | *ET-366581 | TR 2SD1762 E,F |
| 82 | *ET-373025 | TR 2SD1944 J1,J2,K |
| 83 | ET-401091J | TR 2SD2144S U,V,W T05 |
| 84 | ET-396072J | TR 2SD2159 V,W |
| 85 | EV-408643J | VR ROTARY RK14K1240L=15 B103X2 |
| 86 | EV-408642J | VR ROTARY RK14K1240L=20 B103X2 |
| 87 | EW-408817J | CORD A6007 L=160 13P |
| 88 | EW-408816J | CORD A6007 L=160 9P |
| 89 | EW-408819J | CORD A6009 L=130 13P |
| 90 | EW-408818J | CORD A6009 L=130 9P |
| 91 | EW-408681J | WIRE ASSY HFG0711-5201L530 11P |
| 92 | EW-408676J | WIRE ASSY HFG07157601 L580 15P |
| 93 | EW-408679J | WIRE ASSY 52305-1411 L=650 14P |

2. P.C BOARD BLK

| Ref.No. | Part No. | Description |
|---------|---------------|---|
| 1A | BA-A6007T030A | ML PC (#) TU-PRE BLKTP-550 (U) /ML |
| 1B | BA-A6007T030B | ML PC (#) TU-PRE BLKTP-550 (E) /ML |
| 1C | BA-A6007T030C | ML PC (#) TU-PRE BLKTP-550 (V) /ML |
| 1D | BA-A6007T030D | ML PC (#) TU-PRE BLKTP-650 (U) /ML |
| 1E | BA-A6007T030E | ML PC (#) TU-PRE BLKTP-650 (E) /ML |
| 1F | BA-A6007T030F | ML PC (#) TU-PRE BLKTP-650 (V) /ML |
| 2 | BA-A6007T040A | ML PC FL-TON BLK TP-550/ML [TP-550] |
| 3 | BA-A6008T050A | ML PC (#) FL-GEQ BLK TP-650/ML [TP-650] |

PC (#) TU-PRE BLK CONSISTS OF FOLLOWING P.C BOARD.

- TUNER P.C BOARD
- CONTROL P.C BOARD

PC (#) FL-GEQ BLK CONSISTS OF FOLLOWING P.C BOARD.

- FLD P.C BOARD
- GEQ P.C BOARD

3. TUNER P.C BOARD

| Ref.No. | Part No. | Description |
|---------|------------|-----------------------------------|
| D101 | ED-307572 | D SILICON H 1SS131 |
| D201 | ED-372893 | D VARACTOR SVC321SPA A DBL |
| D202 | ED-372893 | D VARACTOR SVC321SPA A DBL |
| D203 | ED-307572 | D SILICON H 1SS131 |
| D204 | ED-307572 | D SILICON H 1SS131 |
| D401 | ED-367576 | D ZENER H HZS5.6B2J |
| D402 | ED-307572 | D SILICON H 1SS131 |
| D403 | ED-307572 | D SILICON H 1SS131 |
| D404 | ED-307572 | D SILICON H 1SS131 |
| D405 | ED-370786 | D ZENER H HZS9.1B2J |
| D406 | ED-389688J | D ZENER H HZS5B2 |
| FE101 | EE-408686J | FRONT END FE415-G10 |
| FL101 | EH-360924 | FILTER LC BP BPMB6A [V] |
| FL102A | EH-394759J | FILTER CE SFE10.7MS2GK-A [U,E] |
| FL102B | EH-338338 | FILTER CE SFE10.7MS3GK-A [V] |
| FL103A | EH-394759J | FILTER CE SFE10.7MS2GK-A [U,E] |
| FL103B | EH-338338 | FILTER CE SFE10.7MS3GK-A [V] |
| FL104 | EH-405199J | FILTER LC LP K7-J1YD-0170 [V] |
| FL301 | EH-408815J | FILTER LC LP 42B-5226-03 |
| FL302 | EH-408815J | FILTER LC LP 42B-5226-03 |
| IC101 | EI-408673J | IC LA1851N |
| IC301 | EI-213390 | IC NJM4558D |
| IC401 | EI-354951 | IC LM7000N |
| L101 | EO-357539 | COIL FIX 1 EL0606RA T05 222K |
| L301 | EO-353588 | COIL FIX 1 LAP02 F05 2R2K [V] |
| L302 | EO-353588 | COIL FIX 1 LAP02 F05 2R2K [V] |
| R107 | ER-324184 | R CB H S10 FS RDS 1/4W 121J |
| R108 | ER-333387 | R CB H S10 FS RDS 1/4W 223J |
| R425 | *ER-318647 | R FUSE H S10 ERD2FC 1/4W 4R7J |
| T101 | EO-408689M | COIL DET 1 499HNAS0078Z10.7MHZ |
| T201 | EO-408808M | COIL VARI 2 MRHNF-45614A |
| T202 | EO-408809M | COIL VARI 2 MRZNF-45615A |
| T203 | EO-363279 | COIL OSC 2 A7NRS-9857X 150.0UH |
| T204 | EO-352089 | COIL OSC 2 7BRS-9098X 580.0UH |
| T205 | EO-408687J | COIL IFT BCFAZ-024 |
| TM1 | EJ-359031 | TERMINAL LEVER YKD31-0215 P 2P |
| TR101 | ET-328265 | TR 2SC930 F |
| TR102 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR201 | ET-349458 | TR FET 2SK192A Y |
| TR202 | ET-394735J | TR 2SC3792 T05 |
| TR203 | ET-353897 | TR DTC114ES |
| TR401 | ET-337759 | TR FET 2SK246 GR |
| TR402 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR403 | ET-354094 | TR DTC144WS |
| TR404 | ET-354094 | TR DTC144WS |
| TR405 | ET-354094 | TR DTC144WS |
| TR406 | ET-353899 | TR 2SA1317 S,T,U |
| TR407 | ET-353899 | TR 2SA1317 S,T,U |
| TR408 | ET-396072J | TR 2SD2159 V,W |
| VC201 | EC-337603 | C S-FIX H VCT51F 5.5-30 |
| VC202 | EC-356284 | C S-FIX H VCT51G 7.5- 50 |
| VR101 | EV-358829 | R S-FIX H RH0615C 0.10W 223 |
| VR102 | EV-356576 | R S-FIX H RH0615C 0.10W 472 |
| VR103 | EV-356576 | R S-FIX H RH0615C 0.10W 472 |
| X101 | EI-408674J | OSC CE CSB456F15 19.000KHZ |
| X401 | EI-408814M | OSC XTAL HC-49/U 7200KHZ |

4. CONTROL P.C BOARD

| Ref.No. | Part No. | Description |
|---------|-------------|--------------------------------------|
| C764 | *EC-346868 | C CE V T05 F 473Z 50DC |
| C765 | *EC-346868 | C CE V T05 F 473Z 50DC |
| C766 | *EC-346868 | C CE V T05 F 473Z 50DC |
| C767 | *EC-346868 | C CE V T05 F 473Z 50DC |
| C801 | *EC-408691J | C DBL LAYER EECF5R5U105 |
| D701 | ED-346534 | D ZENER H HZ7C1L |
| D702 | ED-346534 | D ZENER H HZ7C1L |
| D751 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D752 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D753 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D754 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D755 | ED-346559 | D ZENER H HZ12B2L |
| D756 | ED-346560 | D ZENER H HZ12B3L |
| D757 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D758 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D759 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D760 | ED-337990 | D ZENER H HZ27-1L |
| D761 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D762 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D763 | ED-351418 | D ZENER H HZ7B1L |
| D764 | ED-346531 | D ZENER H HZ7A2L |
| D765 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D766 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D767 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D768 | ED-329058 | D ZENER H HZ5 C1 |
| D801 | ED-307572 | D SILICON H 1SS131 |
| D802 | ED-307572 | D SILICON H 1SS131 |
| D803 | ED-307572 | D SILICON H 1SS131 |
| D804 | ED-307572 | D SILICON H 1SS131 |
| D805 | ED-307572 | D SILICON H 1SS131 |
| D807 | ED-307572 | D SILICON H 1SS131 [U] |
| D808 | ED-307572 | D SILICON H 1SS131 [V] |
| D809 | ED-307572 | D SILICON H 1SS131 [650] |
| D811 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D812 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D813 | ED-307572 | D SILICON H 1SS131 |
| D814 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D815 | ED-307572 | D SILICON H 1SS131 |
| D821 | ED-397289J | D ZENER H HZS20-2 |
| D822 | ED-307572 | D SILICON H 1SS131 |
| IB801 | EH-364919 | COMP R RKC8BS 473J |
| IC501 | EI-302233 | IC TC4051BP |
| IC502 | EI-200573 | IC TC4053BP |
| IC601 | EI-302233 | IC TC4051BP |
| IC602 | EI-200573 | IC TC4053BP |
| IC701 | EI-382660J | IC BA15218-DX |
| IC702 | EI-400756J | IC NJM4558L-B |
| IC703 | EI-400756J | IC NJM4558L-B |
| IC704 | EI-332259 | IC TC4052BP |
| IC801 | EI-408675J2 | IC M38173M6-145FP MXA1TP3 |
| IC802 | EI-387938J | IC HD74LS05P |
| IC804 | EI-408672J | IC S-80721AN |
| J11A | EJ-408669J | PIN J T6060AABF W/SHIELD 6P [U,E] |
| J11B | EJ-408668J | PIN J T5916-AABH 6P [V] |
| R751 | *ER-386215J | R OMF H S12 FS 1W 220J |
| R752 | *ER-386215J | R OMF H S12 FS 1W 220J |
| R759 | *ER-386215J | R OMF H S12 FS 1W 220J |
| R764 | *ER-326169 | R FUSE H S10 ERD2FC 1/4W 22R0G |
| R765 | *ER-408692J | R OMF H S15 FS 2W 390J |
| TR501 | ET-394735J | TR 2SC3792 T05 |
| TR502 | ET-394735J | TR 2SC3792 T05 |
| TR512 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR601 | ET-394735J | TR 2SC3792 T05 |
| TR602 | ET-394735J | TR 2SC3792 T05 |
| TR612 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR751 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR752 | *ET-373025 | TR 2SD1944 J1,J2,K |
| TR753 | ET-353899 | TR 2SA1317 S,T,U |
| TR754 | *ET-366365 | TR 2SB1185 E,F |
| TR755 | ET-353899 | TR 2SA1317 S,T,U |
| TR756 | *ET-366365 | TR 2SB1185 E,F |
| TR757 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR758 | *ET-366581 | TR 2SD1762 E,F |
| TR759 | ET-397160J | TR 2SC3330 R,S,T,U,V |

TP-550/650

| Ref.No. | Part No. | Description |
|---------|------------|--------------------------------|
| TR760 | ET-353899 | TR 2SA1317 S,T,U |
| TR761 | ET-353899 | TR 2SA1317 S,T,U |
| TR801 | ET-354371 | TR DTC124ES |
| TR802 | ET-354371 | TR DTC124ES |
| TR803 | ET-354371 | TR DTC124ES |
| TR804 | ET-354371 | TR DTC124ES |
| TR805 | ET-354371 | TR DTC124ES |
| TR806 | ET-353897 | TR DTC114ES |
| TR807 | ET-354371 | TR DTC124ES |
| TR808 | ET-354370 | TR DTA124ES |
| TR809 | ET-373392 | TR DTC124XS |
| TR810 | ET-369248 | TR DTA114YS |
| TR811 | ET-353897 | TR DTC114ES |
| TR812 | ET-354370 | TR DTA124ES |
| TR815 | ET-353899 | TR 2SA1317 S,T,U |
| TR816 | ET-354371 | TR DTC124ES |
| TR817 | ET-356336 | TR DTA114ES |
| TR818 | ET-401091J | TR 2SD2144S U,V,W T05 |
| TR819 | ET-401091J | TR 2SD2144S U,V,W T05 |
| TS801 | ES-362883 | SW TACT SKHLM |
| W1 | EW-408676J | WIRE ASSY HFG07157601 L580 15P |
| W2 | EW-408679J | WIRE ASSY 52305-1411 L=650 14P |
| W3 | EW-408681J | WIRE ASSY HFG0711-5201L530 11P |
| X801 | EI-405327J | OSC CE CST6.00MGW 6.000MHZ |
| X802 | EI-368825M | OSC X'TAL C-002RX 32.768KHZ |

5. FLD/TONE P.C BOARD (TP-550)

| Ref.No. | Part No. | Description |
|---------|------------|--------------------------------|
| D1 | ED-307572 | D SILICON H 1SS131 |
| D2 | ED-307572 | D SILICON H 1SS131 |
| D3 | ED-307572 | D SILICON H 1SS131 |
| D4 | ED-307572 | D SILICON H 1SS131 |
| D5 | ED-307572 | D SILICON H 1SS131 |
| D6 | ED-307572 | D SILICON H 1SS131 |
| D7 | ED-408651J | D LED SEL2913K ORANGE |
| D8 | ED-408651J | D LED SEL2913K ORANGE |
| D9 | ED-408651J | D LED SEL2913K ORANGE |
| D10 | ED-307572 | D SILICON H 1SS131 |
| IC1 | EI-400756J | IC NJM4558L-B |
| IC2 | EI-400756J | IC NJM4558L-B |
| IN1 | EM-408409J | IND FL 10-MT-44GK CHARACTER |
| PH1 | ET-403246J | DETECTOR HC-377 |
| TR1 | ET-353899 | TR 2SA1317 S,T,U |
| TS1 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS2 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS3 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS4 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS5 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS6 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS7 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS8 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS9 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS10 | ES-408641J | SW TACT EVQ 233 07K T05 |
| VR1 | EV-408642J | VR ROTARY RK14K1240L=20 B103X2 |
| VR2 | EV-408643J | VR ROTARY RK14K1240L=15 B103X2 |
| W2 | EW-408817J | CORD A6007 L=160 13P |
| W3 | EW-408817J | CORD A6007 L=160 13P |
| W4 | EW-408816J | CORD A6007 L=160 9P |

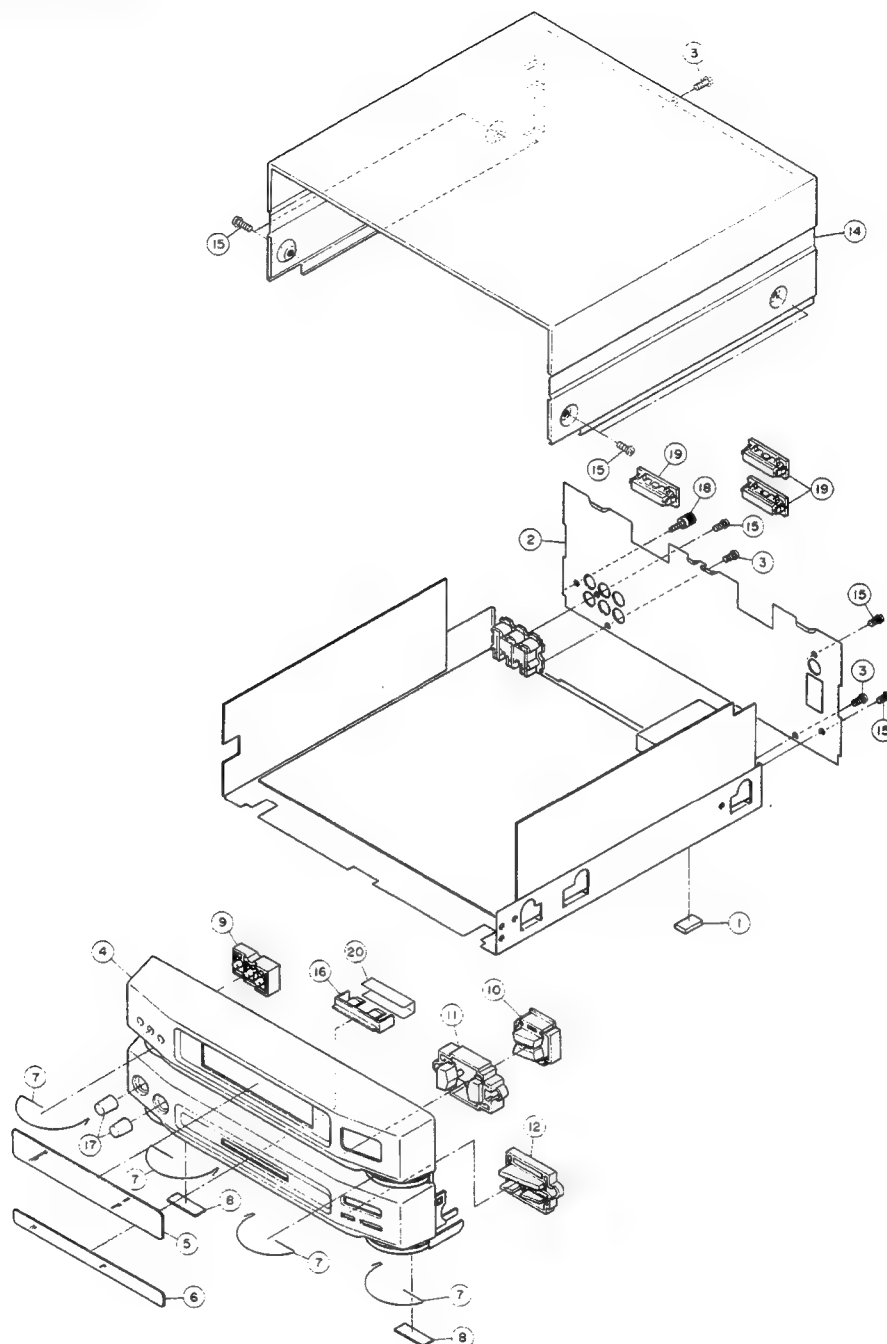
6. FLD P.C BOARD (TP-650)

| Ref.No. | Part No. | Description |
|---------|------------|-----------------------------|
| D101 | ED-624903 | D SILICON H 1S2473 |
| D102 | ED-624903 | D SILICON H 1S2473 |
| D103 | ED-624903 | D SILICON H 1S2473 |
| D104 | ED-624903 | D SILICON H 1S2473 |
| D105 | ED-307572 | D SILICON H 1SS131 |
| D106 | ED-307572 | D SILICON H 1SS131 |
| D107 | ED-307572 | D SILICON H 1SS131 |
| D108 | ED-307572 | D SILICON H 1SS131 |
| D109 | ED-408651J | D LED SEL2913K ORANGE |
| D110 | ED-307572 | D SILICON H 1SS131 |
| D111 | ED-307572 | D SILICON H 1SS131 |
| IC101 | EI-408645J | IC LC866008A-*** MXA1GE1 |
| IN101 | EM-408409J | IND FL 10-MT-44GK CHARACTER |
| IN102 | EM-408410J | IND FL BJ035GK DOUBLE |
| PH101 | ET-403246J | DETECTOR HC-377 |
| TR102 | ET-354414 | TR DTC144ES |
| TR103 | ET-356336 | TR DTA114ES |
| TR105 | ET-354364 | TR DTC143TS |
| TR106 | ET-361736 | TR 2SC3576 |
| TR107 | ET-361736 | TR 2SC3576 |
| TR108 | ET-354414 | TR DTC144ES |
| TS101 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS102 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS103 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS104 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS105 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS106 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS107 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS108 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS109 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS110 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS111 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS112 | ES-408641J | SW TACT EVQ 233 07K T05 |
| TS113 | ES-408641J | SW TACT EVQ 233 07K T05 |
| W101 | EW-408818J | CORD A6009 L=130 9P |
| W102 | EW-408819J | CORD A6009 L=130 13P |
| W103 | EW-408819J | CORD A6009 L=130 13P |
| X101 | EI-408649J | OSC CE CST12.0MTW 12.000MHZ |

7. GEQ P.C BOARD (TP-650)

| Ref.No. | Part No. | Description |
|---------|------------|--------------------------------|
| D201 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D202 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D203 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D204 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D205 | ED-408807J | D ZENER H HZS12C3 |
| D206 | ED-408807J | D ZENER H HZS12C3 |
| D207 | ED-397103J | D ZENER H HZS6A1 |
| FR201 | *ER-331619 | R FUSE H S10 ERD2FC 1/4W 39R0G |
| FR202 | *ER-318248 | R FUSE H S10 ERD2FC 1/4W 47R0G |
| IB201 | EH-408650J | COMP R RYLS7J105 105J |
| IB202 | EH-408650J | COMP R RYLS7J105 105J |
| IC201 | EI-408647J | IC LC7522 |
| IC202 | EI-408648J | IC LA3607 |
| IC203 | EI-408648J | IC LA3607 |
| IC204 | EI-400756J | IC NJM4558L-B |
| IC205 | EI-408646J | IC XR1091ECP |
| IC206 | EI-332259 | IC TC4052BP |
| TR201 | ET-394735J | TR 2SC3792 T05 |
| TR202 | ET-394735J | TR 2SC3792 T05 |
| TR203 | ET-356336 | TR DTA114ES |
| TR204 | ET-354414 | TR DTC144ES |
| TR205 | ET-366581 | TR 2SD1762 E,F |
| TR206 | ET-400965J | TR 2SB1357 E,F T05 |
| TR207 | ET-353899 | TR 2SA1317 S,T,U |

FINAL ASSEMBLY (TP-550)



8. FINAL ASSEMBLY (TP-550)

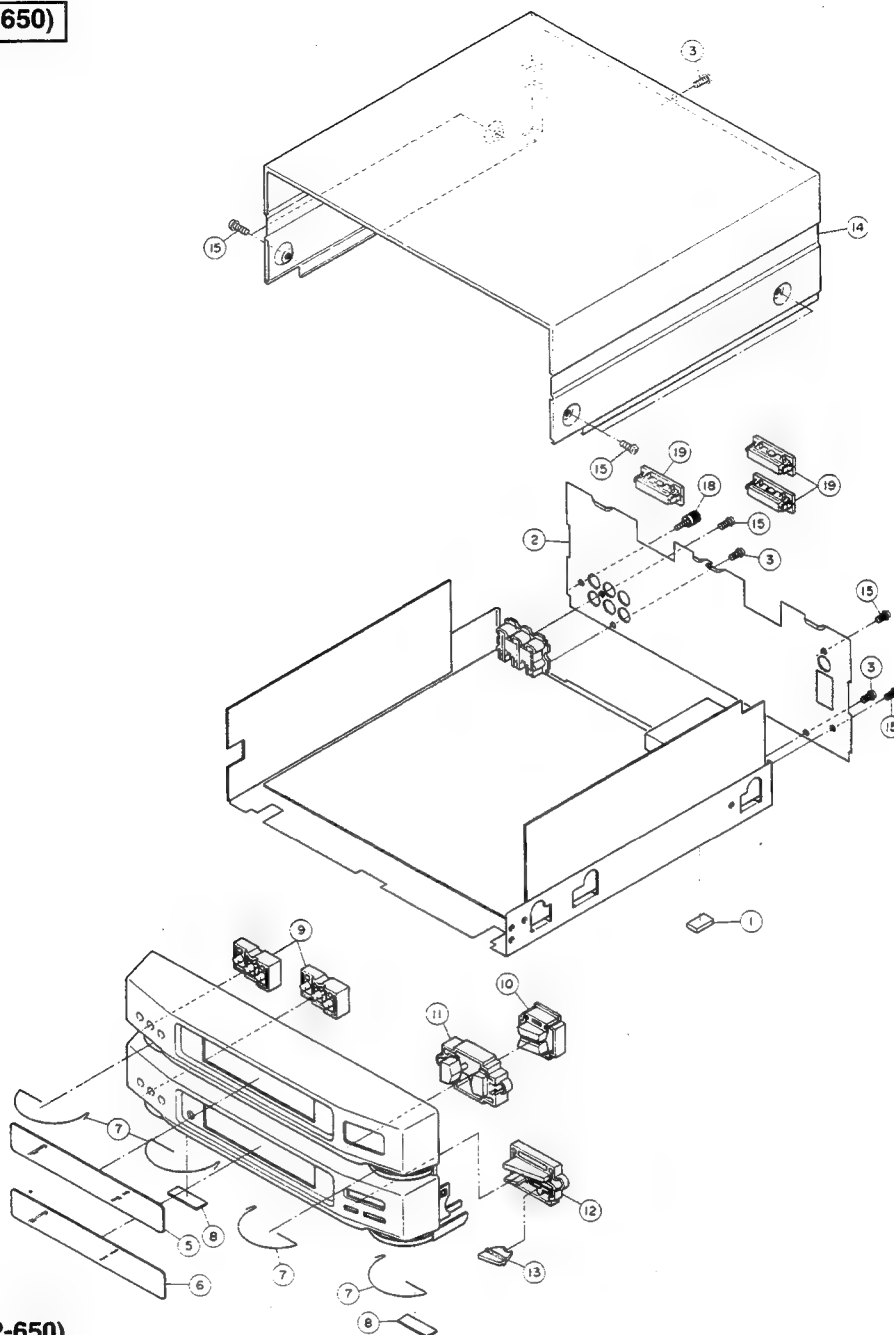
| Ref.No. | Part No. | Description |
|---------|------------|-----------------------------|
| 1 | SA-407840M | CUSHION FOOT REAR (SG) |
| 2A | SP-407907M | PANEL REAR TP-550 (U) (SG) |
| 2B | SP-407923M | PANEL REAR TP-550 (E) (SG) |
| 2C | SP-407924M | PANEL REAR TP-550 (V) (SG) |
| 3 | ZS-308846 | T2BR30X08STL BZN PROJECTION |
| 4 | SP-407897M | PANEL FRONT (SG) |
| 5 | SE-407903M | WINDOW-A (SG) |
| 6 | SE-407904M | WINDOW-B (SG) |
| 7 | SZ-407871M | RING FOOT (A) (SG) |
| 8 | SA-394136M | CUSHION FOOT (SG) |
| 9 | SB-407898M | BUTTON TIMER (SG) |
| 10 | SB-407900M | BUTTON-CH (SG) |
| 11 | SB-407901M | BUTTON-FR (SG) |
| 12 | SB-407899M | BUTTON SELECTOR (SG) |

| Ref.No. | Part No. | Description |
|---------|------------|--------------------------|
| 14 | SP-407906M | COVER UPPER (SG) |
| 15 | ZS-331182 | BT BID30X08STL BNI |
| 16 | SE-407905M | LENS-SB (SG) |
| 17 | SK-407902M | KNOB TONE (SG) |
| 18 | EJ-393745J | TERMINAL W/SCREW UB-0132 |
| 19 | SZ-407909M | WIRE HOLDER (SG) |
| 20 | SZ-407908M | REFLECTOR-SB (SG) |

NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

FINAL ASSEMBLY (TP-650)



9. FINAL ASSEMBLY (TP-650)

| Ref.No. | Part No. | Description |
|---------|------------|-----------------------------|
| 1 | SA-407840M | CUSHION FOOT REAR (SG) |
| 2A | SP-407925M | PANEL REAR TP-650 (U) (SG) |
| 2B | SP-407926M | PANEL REAR TP-650 (E) (SG) |
| 2C | SP-407927M | PANEL REAR TP-650 (V) (SG) |
| 3 | ZS-308846 | T2BR30X08STL BZN PROJECTION |
| 4 | SP-407912M | PANEL FRONT (SG) |
| 5 | SE-407903M | WINDOW-A (SG) |
| 6 | SE-407915M | WINDOW-TP (SG) |
| 7 | SZ-407871M | RING FOOT (A) (SG) |
| 8 | SA-394136M | CUSHION FOOT (SG) |
| 9 | SB-407898M | BUTTON TIMER (SG) |
| 10 | SB-407900M | BUTTON-CH (SG) |
| 11 | SB-407901M | BUTTON-FR (SG) |
| 12 | SB-407913M | BUTTON SELECTOR (SG) |
| 13 | SB-407914M | BUTTON-SB (SG) |
| 14 | SP-407906M | COVER UPPER (SG) |
| 15 | ZS-331182 | BT BID30X08STL BNI |
| 18 | EJ-393745J | TERMINAL W/SCREW UB-0132 |
| 19 | SZ-407909M | WIRE HOLDER (SG) |

NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

10. ACCESSORY

| Ref.No. | Part No. | Description |
|---------|------------|-----------------------------|
| 1 | EE-394420M | ANT LOOP LA-75 |
| 2 | EE-396107M | ANT WIRE FM A3063 |
| 3 | EJ-394417J | SOCKET COAX HXC 0526-01-010 |

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| Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. |
|--------------|----------|------------|----------|-----------|----------|-----------|----------|
| BAA6007T030A | 2-1A | ED511907 | 4-D757 | EO352089 | 3-T204 | ET354371 | 4-TR816 |
| BAA6007T030B | 2-1B | ED511907 | 4-D758 | EO353588 | 3-L301 | ET354414 | 6-TR102 |
| BAA6007T030C | 2-1C | ED511907 | 4-D759 | EO353588 | 3-L302 | ET354414 | 6-TR108 |
| BAA6007T030D | 2-1D | ED511907 | 4-D761 | EO357539 | 3-L101 | ET354414 | 7-TR204 |
| BAA6007T030E | 2-1E | ED511907 | 4-D762 | EO363279 | 3-T203 | ET356336 | 4-TR817 |
| BAA6007T030F | 2-1F | ED511907 | 4-D765 | EO408687J | 3-T205 | ET356336 | 6-TR103 |
| BAA6007T040A | 2-2 | ED511907 | 4-D766 | EO408689M | 3-T101 | ET356336 | 7-TR203 |
| BAA6008T050A | 2-3 | ED511907 | 4-D767 | EO408808M | 3-T201 | ET361736 | 6-TR106 |
| EC337603 | 3-VC201 | ED511907 | 4-D811 | EO408809M | 3-T202 | ET361736 | 6-TR107 |
| EC346868 | 4-C764 | ED511907 | 4-D812 | ER318248 | 7-FR202 | ET366365 | 4-TR754 |
| EC346868 | 4-C765 | ED511907 | 4-D814 | ER318647 | 3-R425 | ET366365 | 4-TR756 |
| EC346868 | 4-C766 | ED511907 | 7-D201 | ER324184 | 3-R107 | ET366581 | 4-TR758 |
| EC346868 | 4-C767 | ED511907 | 7-D202 | ER326169 | 4-R764 | ET366581 | 7-TR205 |
| EC356284 | 3-VC202 | ED511907 | 7-D203 | ER331619 | 7-FR201 | ET369248 | 4-TR810 |
| EC408691J | 4-C801 | ED511907 | 7-D204 | ER333387 | 3-T108 | ET373025 | 4-TR752 |
| ED307572 | 3-D101 | ED624903 | 6-D101 | ER386215J | 4-R751 | ET373392 | 4-TR809 |
| ED307572 | 3-D203 | ED624903 | 6-D102 | ER386215J | 4-R752 | ET394735J | 3-TR202 |
| ED307572 | 3-D204 | ED624903 | 6-D103 | ER386215J | 4-R759 | ET394735J | 4-TR501 |
| ED307572 | 3-D402 | ED624903 | 6-D104 | ER408692J | 4-R765 | ET394735J | 4-TR502 |
| ED307572 | 3-D403 | EE394420M | 10-1 | ES362883 | 4-TS801 | ET394735J | 4-TR601 |
| ED307572 | 3-D404 | EE396107M | 10-2 | ES408641J | 5-TS1 | ET394735J | 4-TR602 |
| ED307572 | 4-D801 | EE408686J | 3-FE101 | ES408641J | 5-TS2 | ET394735J | 7-TR201 |
| ED307572 | 4-D802 | EH338338 | 3-FL102B | ES408641J | 5-TS3 | ET394735J | 7-TR202 |
| ED307572 | 4-D803 | EH338338 | 3-FL103B | ES408641J | 5-TS4 | ET396072J | 3-TR408 |
| ED307572 | 4-D804 | EH360924 | 3-FL101 | ES408641J | 5-TS5 | ET397160J | 3-TR102 |
| ED307572 | 4-D805 | EH364919 | 4-IB801 | ES408641J | 5-TS6 | ET397160J | 3-TR402 |
| ED307572 | 4-D807 | EH394759J | 3-FL102A | ES408641J | 5-TS7 | ET397160J | 4-TR512 |
| ED307572 | 4-D808 | EH394759J | 3-FL103A | ES408641J | 5-TS8 | ET397160J | 4-TR612 |
| ED307572 | 4-D809 | EH405199J | 3-FL104 | ES408641J | 5-TS9 | ET397160J | 4-TR751 |
| ED307572 | 4-D813 | EH408650J | 7-IB201 | ES408641J | 5-TS10 | ET397160J | 4-TR757 |
| ED307572 | 4-D815 | EH408650J | 7-IB202 | ES408641J | 6-TS101 | ET397160J | 4-TR759 |
| ED307572 | 4-D822 | EH408815J | 3-FL301 | ES408641J | 6-TS102 | ET400965J | 7-TR206 |
| ED307572 | 5-D1 | EH408815J | 3-FL302 | ES408641J | 6-TS103 | ET401091J | 4-TR818 |
| ED307572 | 5-D2 | EI200573 | 4-IC502 | ES408641J | 6-TS104 | ET401091J | 4-TR819 |
| ED307572 | 5-D3 | EI200573 | 4-IC602 | ES408641J | 6-TS105 | ET403246J | 5-PH1 |
| ED307572 | 5-D4 | EI213390 | 3-IC301 | ES408641J | 6-TS106 | ET403246J | 6-PH101 |
| ED307572 | 5-D5 | EI302233 | 4-IC501 | ES408641J | 6-TS107 | EV356576 | 3-VR102 |
| ED307572 | 5-D6 | EI302233 | 4-IC601 | ES408641J | 6-TS108 | EV356576 | 3-VR103 |
| ED307572 | 5-D10 | EI332259 | 4-IC704 | ES408641J | 6-TS109 | EV358829 | 3-VR101 |
| ED307572 | 6-D105 | EI332259 | 7-IC206 | ES408641J | 6-TS110 | EV408642J | 5-VR1 |
| ED307572 | 6-D106 | EI354951 | 3-IC401 | ES408641J | 6-TS111 | EV408643J | 5-VR2 |
| ED307572 | 6-D107 | EI368825M | 4-X802 | ES408641J | 6-TS112 | EW408676J | 4-W1 |
| ED307572 | 6-D108 | EI382660J | 4-IC701 | ES408641J | 6-TS113 | EW408679J | 4-W2 |
| ED307572 | 6-D110 | EI387938J | 4-IC802 | ET328265 | 3-TR101 | EW408681J | 4-W3 |
| ED307572 | 6-D111 | EI400756J | 4-IC702 | ET337759 | 3-TR401 | EW408816J | 5-W4 |
| ED329058 | 4-D768 | EI400756J | 4-IC703 | ET349458 | 3-TR201 | EW408817J | 5-W2 |
| ED337990 | 4-D760 | EI400756J | 5-IC1 | ET353897 | 3-TR203 | EW408817J | 5-W3 |
| ED346531 | 4-D764 | EI400756J | 5-IC2 | ET353897 | 4-TR806 | EW408818J | 6-W101 |
| ED346534 | 4-D701 | EI400756J | 7-IC204 | ET353897 | 4-TR811 | EW408819J | 6-W102 |
| ED346534 | 4-D702 | EI405327J | 4-X801 | ET353899 | 3-TR406 | EW408819J | 6-W103 |
| ED346559 | 4-D755 | EI408645J | 6-IC101 | ET353899 | 3-TR407 | SA394136M | 8-8 |
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| ED511907 | 4-D752 | EM408409J | 5-IN1 | ET354371 | 4-TR804 | SE407915M | 9-6 |
| ED511907 | 4-D753 | EM408409J | 6-IN101 | ET354371 | 4-TR805 | SK407902M | 8-17 |
| ED511907 | 4-D754 | EM408410J | 6-IN102 | ET354371 | 4-TR807 | SP407897M | 8-4 |

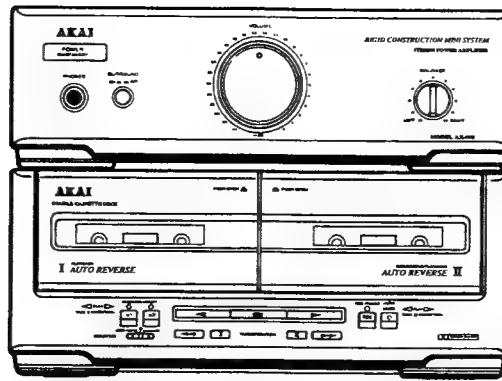
TP-550/650

| Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. |
|-----------|----------|----------|----------|----------|----------|----------|----------|
| SP407906M | 8-14 | | | | | | |
| SP407906M | 9-14 | | | | | | |
| SP407907M | 8-2A | | | | | | |
| SP407912M | 9-4 | | | | | | |
| SP407923M | 8-2B | | | | | | |
| SP407924M | 8-2C | | | | | | |
| SP407925M | 9-2A | | | | | | |
| SP407926M | 9-2B | | | | | | |
| SP407927M | 9-2C | | | | | | |
| SZ407871M | 8-7 | | | | | | |
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| SZ407908M | 8-20 | | | | | | |
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ABBREVIATIONS (TUNER)

| ABBREVIATION | EXPLANATION | ABBREVIATION | EXPLANATION |
|--------------|---------------------------|--------------|--------------------------------|
| AFC | Auto Frequency Control | MEMO | MEMOry |
| AGC | Auto Gain Control | MI-COM | Micro-COMputer |
| ALC | Auto Level Control | MIN | MINimum |
| AM | Amplitude Modulation | MIX | MIXing |
| AMP | AMPlifier | MPX | Multi pleX |
| ANT | ANTenna | MW | Medium Wave (frequency) |
| BATT | BATTery | NC | No Connection |
| BLK | BLock | NFB | Negative Feed Back |
| BUFF | BUFFer | OSC | OSCillator |
| COMP | COMPalator | PCB | Printed Circuit Board |
| DET | DETECT (DETctor) | PLL | Phase Locked Loop |
| FLD | FLUorescent Display | Q.D | Quadrature Detector |
| FM | Frequency Modulation | Rch | Right channel |
| FREQ | FREQUENCY | REF | REFerence |
| GND | GrouND | REG | REGulator |
| H | Hight | RF | Radio Frequency |
| HPF | Hight Pass Filter | SEG | SEGment |
| IF | Intermediate Frequency | SELE | SELEctor |
| IHF | Institut of High Fidelity | SENS | SENSitivity |
| IND | INDicator | SIG | SIGnal |
| I/O | In/Out | S/N | Signal to Noise Ratio |
| JW | Jumper Wire | SSG | Standard Signal Generator |
| L | Low | STD | STanDard |
| LCD | Liquid Crystal Display | SW | SWitch: Short Wave (frequency) |
| Lch | Left channel | THD | Total Harmonic Distortion |
| LED | Light Emiting Diode | TP | Test Point |
| LPF | Low Pass Filter | VCO | Voltage Controlled Cscillator |
| LW | Long Wave (Frequency) | VR | Variable Resistor |
| | | XTAL | Crystal |

MEMO



MODEL AX-650

STEREO DECK AMPLIFIER

MODEL AX-550/650

SPECIFICATIONS

[AMPLIFIER section]

Power output

| | |
|--------------|--|
| AX-550 | 50W+50W (6 ohms, 1kHz, 10% THD, EIAJ), 35W+35W (6 ohms, 1kHz, 1% THD, DIN) 30W+30W (6 ohms, 60Hz to 20kHz, 0.5% THD, FTC) |
| AX-650 | 60W+60W (6 ohms, 1kHz, 10% THD, EIAJ), 50W+50W (6 ohms, 1kHz, 1% THD, DIN) 40W+40W (6 ohms, 60 Hz to 20 kHz, 0.5% THD, FTC) |

Music power output..... TOTAL 350W (AX-550), 430W (AX-650)

Peak music power output TOTAL 600W (AX-550), 700W (AX-650)

Frequency response 10Hz to 100kHz (10Hz: -4dB, 100kHz: -3dB)

Required speaker impedance 8 to 16 ohms (Front speaker), 8 to 16 ohms (Surround speaker)

Input Sensitivity

PHONO 3mV/47k ohms

VCR..... 230mV/22k ohms

Output level VCR 150mV/1k ohms

S/N ratio

PHONO 61dB

ETC 75dB

Residual noise..... 0.3mV

Channel separation 65dB

[Deck section]

Track system 4 track, 2 channel system

Frequency response 35 to 14,000Hz \pm 3dB (Normal tape)

35 to 15,000Hz \pm 3dB (CrO₂ tape)

Wow & Flutter 0.09% (WRMS), 0.15% (DIN)

S/N ratio 76dB (Dolby C ON, 1 kHz to 10 kHz)

66dB (Dolby B ON, 5 kHz)

56dB (Dolby OFF, CrO₂ tape)

Total harmonic distortion less than 0.3% (Normal tape, at 315Hz)

Channel separation 35dB (Normal tape)

[General]

Power requirements AC220V-230V, 50Hz for Europe except UK, AC240V, 50Hz for UK & Australia
AC110V/120V/220V/240V, 50/60Hz convertible for other countries

Demensions 270(W) x 200(H) x 313(D)mm

Weight 7.0kg

Power consumption..... 110W (AX-550), 140W (AX-650)

Standard accessories


Remote control unit..... x 1

Batteries x 2

Operator's manual x 1

* For improvement purposes, specifications and design are subject to change without notice.

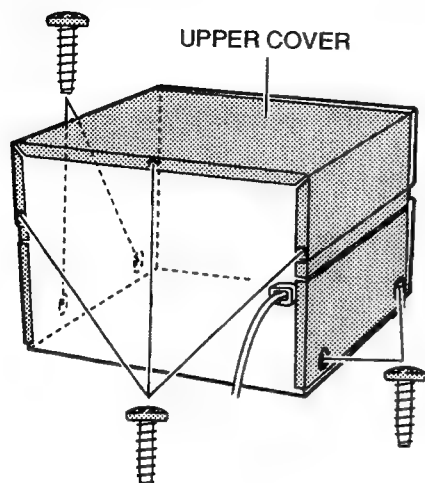
* Noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"DOLBY" and  symbol are trademarks of Dolby Licensing Corporation.

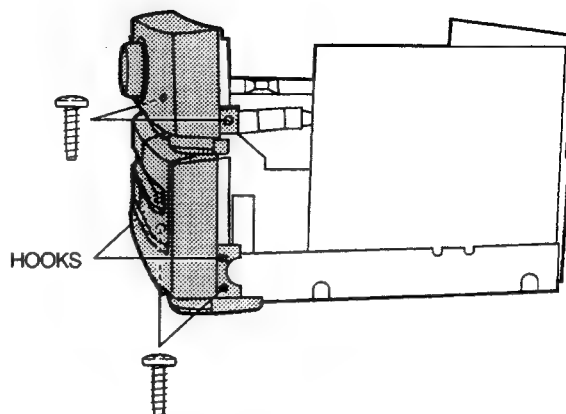
I.DISASSEMBLY

In case of trouble etc., necessitating dismantling, please dismantle in the order shown in the illustrations.
Reassemble in the reverse order.

1. Removal of the UPPER COVER

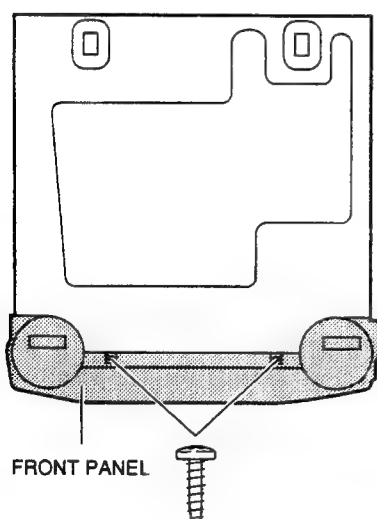


3.

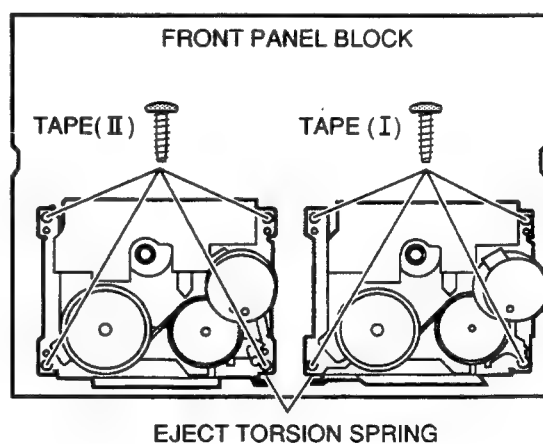


- 1) Disconnect the wires from J4 and J8 connectors on the POWER SUPPLY PCB, P101,P102,J651,J652,J801 and J802 on the DECK PCB, J2 on the MAIN AMP PCB.

2. Removal of the FRONT PANEL BLOCK



4. Removal of the CASSETTE MECHA BLOCK



- 1) Unhook the EJECT TORSION SPRING.
- 2) Remove the four MECHA BLOCK RETAINING SCREWS.

II. PRINCIPAL PARTS LOCATION

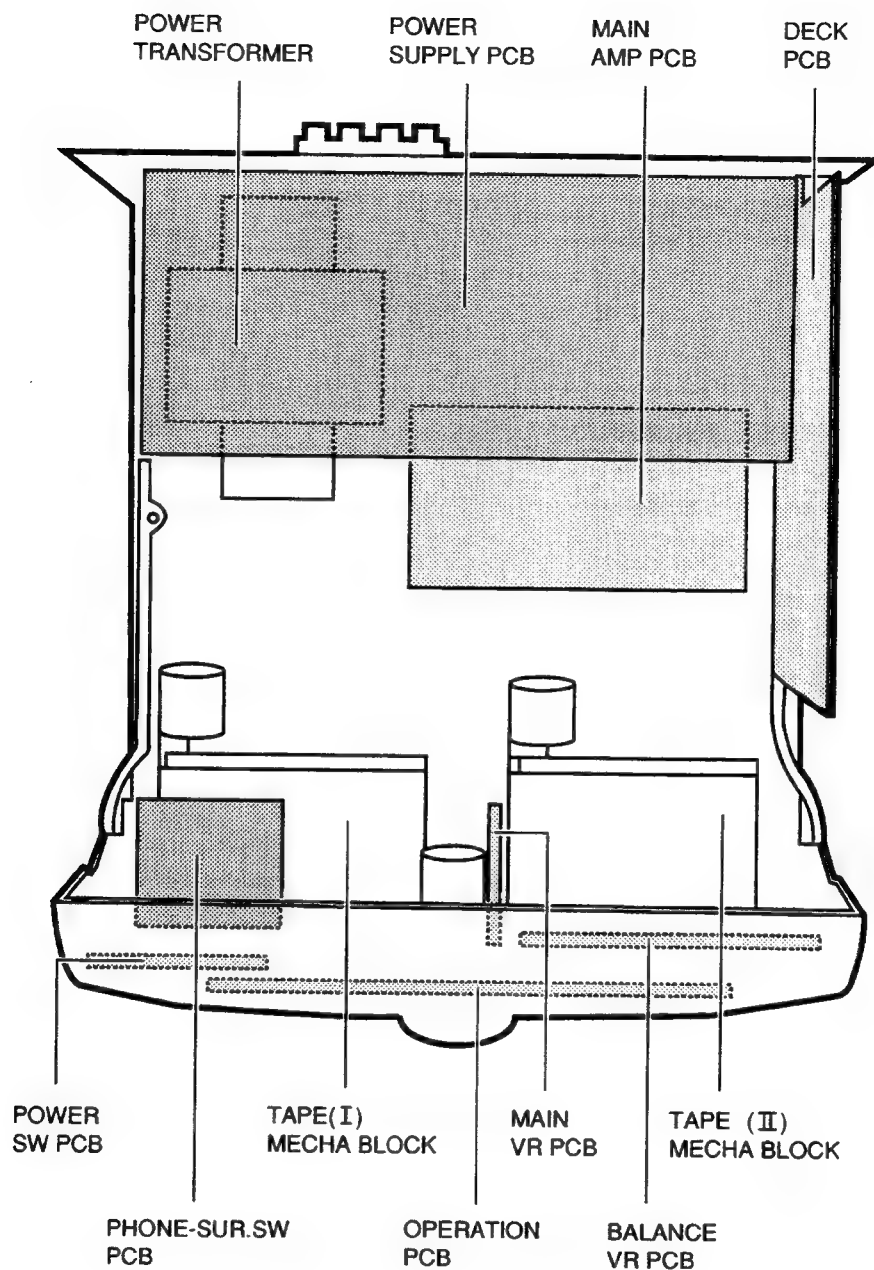


Fig.2-1 Top view

III.REPLACEMENT OF PRINCIPAL MECHANICAL PARTS

3-1.REPLACEMENT OF THE PINCH ROLLER BLOCK

- 1) Pull the PINCH ROLLER BLOCK upward (▲) while releasing the PINCH ROLLER RETAINING HOOK
- 2) Reassemble in the reverse order.

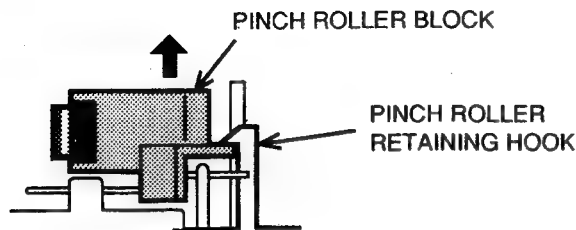


Fig.3-1

3-2.REPLACEMENT OF THE PB HEAD (TAPE I)

- 1) Remove the two HEAD RETAINING (A) SCREWS.
- 2) Pull out the HEAD and disconnect all the lead wires with a soldering iron, then replace the PB HEAD.
- 3) Reassemble in the reverse order. After replacement, head azimuth and PB level (AX-650 only) adjustment must be performed.

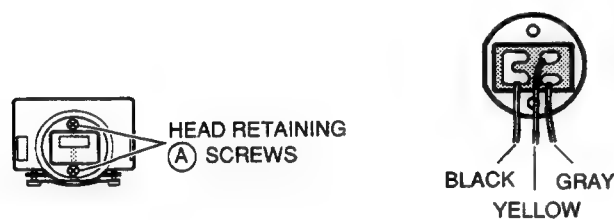


Fig.3-2

Fig.3-3

3-3.REPLACEMENT OF THE REC/PB HEAD (TAPE II)

- 1) Remove the two HEAD RETAINING (A) SCREWS.
- 2) Pull out the HEAD and disconnect all lead wires with a soldering iron, then replace the REC/PB HEAD.
- 3) Reassemble in the reverse order. After replacement, head azimuth, PB level (AX-650 only), BIAS current (AX-650 only) and REC level (AX-650 only) adjustments must be performed.

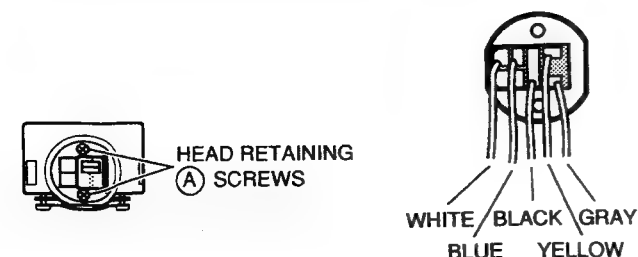


Fig.3-4

Fig.3-5

3-4.REPLACEMENT OF THE CAPSTAN MOTOR

- 1) Disconnect the lead wire of the CAPSTAN MOTOR with a soldering iron.
- 2) Remove the CAPSTAN MOTOR RETAINING (B) SCREWS, then replace the CAPSTAN MOTOR.
- 3) Reassemble in the reverse order and set the DRIVE BELT. After replacement, tape speed adjustment must be performed.

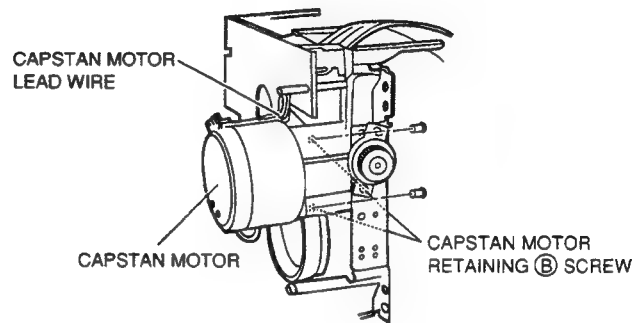


Fig.3-6

3-5.REPLACEMENT OF THE DRIVE BELT

- 1) Remove the CAPSTAN MOTOR RETAINING (B) SCREWS. (refer illustration Fig.3-6)
- 2) Unsolder the lead wires of the SOLENOID with a soldering iron.
- 3) Remove the two MOTOR PCB RETAINING (C) SCREWS and separate the MOTOR PCB from the MECHA BLK. Replace the DRIVE BELT.
- 4) Reassemble in the reverse order. After replacement, confirm the tape speed and if the result is not satisfactory, adjust the tape speed.

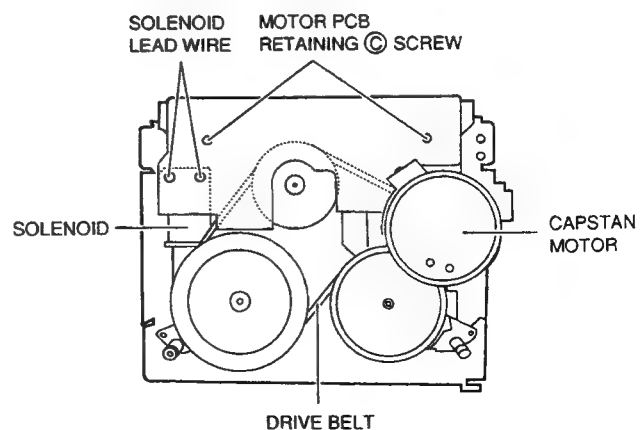


Fig.3-7

IV.MECHANICAL ADJUSTMENT

4-1.ADJUSTMENT OF THE PB HEAD AZIMUTH ALIGNMENT (TAPE I)

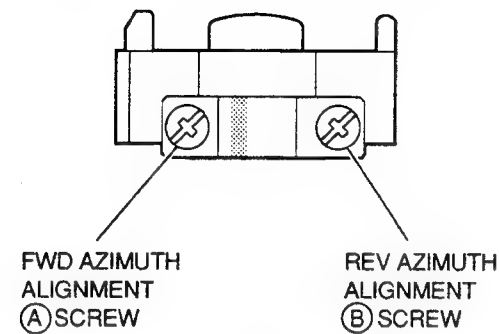


fig.4-1

- 1) Connect an AC milli-voltmeter to the TEST POINT 1L and 1R (refer to the illustration on page 24) and connect an oscilloscope's input CH-1 and CH-2 to the output of the AC milli-voltmeters.
- 2) Play back the 10 kHz (-15 dB), HEAD AZIMUTH ALIGNMENT TEST TAPE (TF-106CH) then adjust the PB HEAD AZIMUTH ALIGNMENT (A) (FWD PLAY) and (B) (REV PLAY) SCREW respectively so that the reading on the AC milli-voltmeters are at maximum and waveforms on the oscilloscope are in the same phase, in both FWD and REV directions.

4-2.ADJUSTMENT OF THE REC/PB HEAD AZIMUTH ALIGNMENT (TAPE II)

- 1) Connect an AC milli-voltmeter to the TEST POINT 1L and 1R (refer to the illustration on page 24) and connect the oscilloscope's input CH-1 and CH-2 to the output of the AC milli-voltmeters.
- 2) Play back the 10 kHz (-15dB), HEAD AZIMUTH ALIGNMENT TEST TAPE (TF-106CH) then adjust the REC/PB HEAD AZIMUTH ALIGNMENT (A) (FWD PLAY) and (B) (REV PLAY) SCREW respectively so that the reading on the AC milli-voltmeters are at maximum and waveforms on the oscilloscope are in the same phase in both FWD and REV directions.

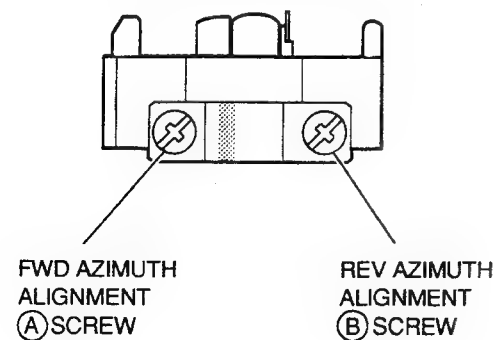


Fig.4-2

AX-550/650

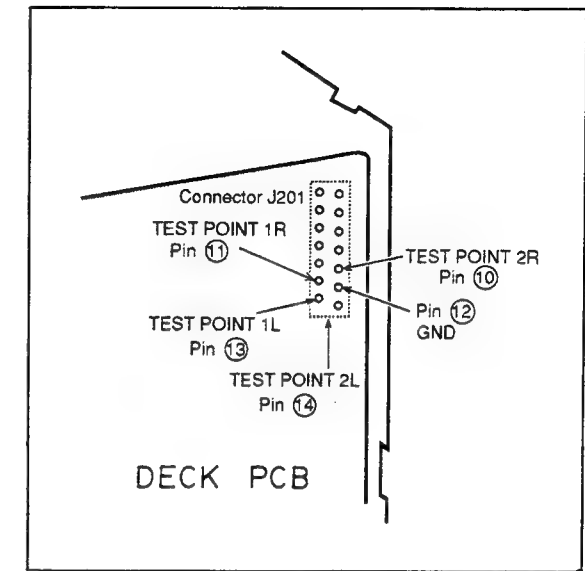
V. ELECTRICAL ADJUSTMENT

- NOTE:**
- 1) The following adjustment should be performed in the test mode.
To engage the test mode, connect the AC power cord to the AC outlet while pressing the ►► and ◄◄ buttons together.
When the test mode is engaged, X1 dub lamp is lit.
 - 2) When performing the tape speed adjustment, observe the following notes.
 - Adjustment should be started more than 30 seconds after the power is ON.
 - Adjustment should be made on X2 speed mode first then adjust normal speed mode.
 - Adjustment should be made in the forward direction.
 - 3) An AC milli-volt meter input should be terminated with 20k ohms register in parallel.

| STEP ADJUSTMENT | |
|---------------------------------|-------------------------------|
| 1. TEST TAPE/INPUT SIGNAL | Adjustment Part Test Point |
| 2. MODE | |
| 3. CHECK POINT, ADJUSTMENT PART | |
| 4. REMARKS (●) and RESULT (*) | |

- 6 TAPE II PB LEVEL (AX-650 ONLY)**
1. 315Hz test tape (TF-101CL)
 2. PLAY
 3. TEST POINT 1L & 1R, VR102 (L-ch) / VR152 (R-ch)
 4. •Connect an AC milli-voltmeter to the TEST POINT 1L & 1R.
* -6.0dBs

- 5 TAPE I PB LEVEL (AX-650 ONLY)**
1. 315Hz test tape (TF-101CL)
 2. PLAY
 3. TEST POINT 1L & 1R, VR101 (L-ch) / VR151 (Rch)
 4. •Connect an AC milli-voltmeter to the TEST POINT 1L & 1R.
* -6.0dBs

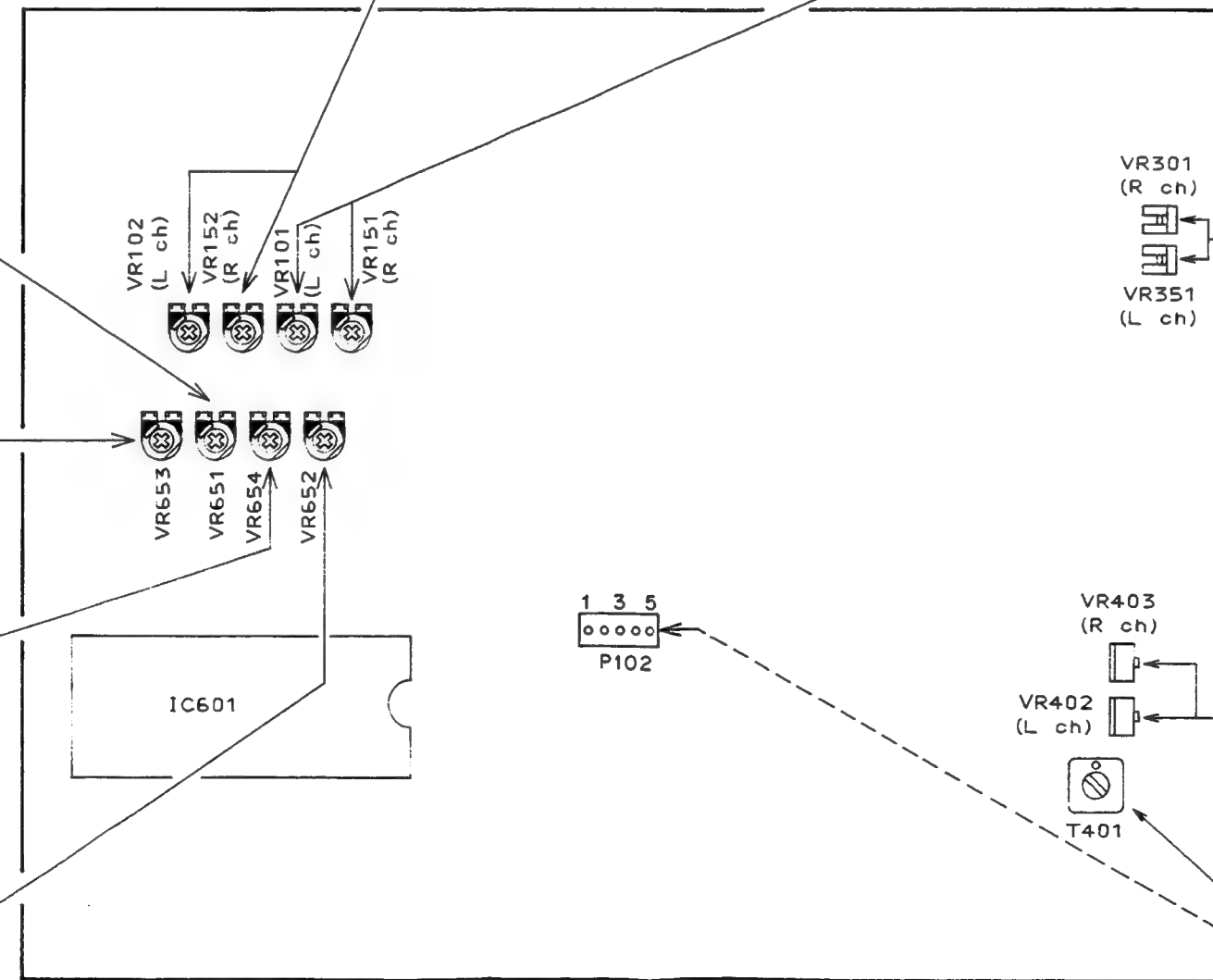


- 1 TAPE I (X2) TAPE SPEED**
1. 3,150Hz test tape (TF-110CT)
 2. PLAY (press the x2 DUBBING START button)
 3. TEST POINT 1L, VR651
 4. •Connect a frequency counter to the TEST POINT 1L.
* $6,300 \pm 20$ Hz

- 2 TAPE I NORMAL TAPE SPEED**
1. 3,150Hz test tape (TF-110CT)
 2. PLAY
 3. TEST POINT 1L, VR653
 4. •Connect a frequency counter to the TEST POINT 1L.
* $3,150 \pm 10$ Hz

- 3 TAPE II (X2) TAPE SPEED**
1. 3,150Hz test tape (TF-110CT)
 2. PLAY (press the x2 DUBBING START button)
 3. TEST POINT 1L, VR654
 4. •Connect a frequency counter to the TEST POINT 1L.
* $6,300 \pm 20$ Hz

- 4 TAPE II NORMAL TAPE SPEED**
1. 3,150Hz test tape (TF-110CT)
 2. PLAY
 3. TEST POINT 1L, VR652
 4. •Connect a frequency counter to the TEST POINT 1L.
* $3,150 \pm 10$ Hz



- 9 RECORDING LEVEL (AX-650 ONLY)**
1. 1 kHz, -6.0 dBs (LINE OUT), NORMAL recording test tape (UD-124)
 2. REC → PLAY
 3. TEST POINT 1L & 1R, VR351 (L-ch) / VR301 (R-ch)
 4. •Connect an AC Milli-voltmeter to the TEST POINT 1L & 1R.
•Connect an audio signal generator to the TEST POINT 2L & 2R and set the generator level so that the TEST POINT 1L & 1R levels are -6.0 dBs.
*Playback levels after recording are -6.0dBs

- 8 NORMAL POSITION BIAS (AX-650 ONLY)**
1. 1 kHz and 10 kHz, -26.0 dBs (LINE OUT), NORMAL recording test tape (UD-124).
 2. REC → PLAY
 3. TEST POINT 1L & 1R, VR402 (L-ch) / VR403 (R-ch)
 4. •Connect an AC Milli-voltmeter to the TEST POINT 1L & 1R.
•Connect an audio signal generator to the TEST POINT 2L & 2R and set the generator level so that the TEST POINT 1L & 1R levels are -26.0 dBs.
*Playback level difference between 1kHz and 10kHz after recording is within ± 0.3 dB.

- 7 BIAS OSC FREQUENCY**
1. CrO2 type blank tape
 2. REC
 3. TAPE II, T401 (P102)
 4. •Connect a frequency counter between P102 ⑤ pin and GND.
* 100.0 ± 0.2 kHz

FRONT
DECK PCB

VI. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering.
If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

| Ref. No. | Part No. | Description |
|----------|---------------|--------------------|
| 1 | BH-T2023A320A | HEAD BASE BLOCK |
| 2 | HP-H2206A010A | HEAD R/P PR4-8FU C |
| 3 | ZS-477876 | PAN20×03STL CMT |
| 4 | ZS-536488 | BID20×08STL CMT |
| 5 | ZG-402895 | SP CS ANGLE ADJUST |

SP (Service Parts) Classification

This number corresponds with the individual parts index number in that figure.

b) PC Board

6. MAIN PC BOARD

| Ref. No. | Part No. | Description |
|----------|-----------|------------------------------|
| IC1 | EI-324536 | IC HD14049BP |
| IC2 | EI-336801 | IC MB8841-564M |
| C1A | EC-338399 | C MMY V 223M 250AC [U,E,B,S] |
| C1B | EC-350949 | C MMY V 223M 250DC [J] |
| C1C | EC-338397 | C MMY V 223M 125AC [C,A] |
| X1 | EI-318384 | OSC X'TAL NC-18C |

Symbols for primary destination

[A] : AAL (U.S.A) [S] : SAA (Australia)
[B] : BEAB (England) [U] : U/T (Universal Area)
[C] : CSA (Canada)
[E] : CEE (Europe) [V] : VDE (Germany)
[J] : JPN (Japan) [Y] : Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

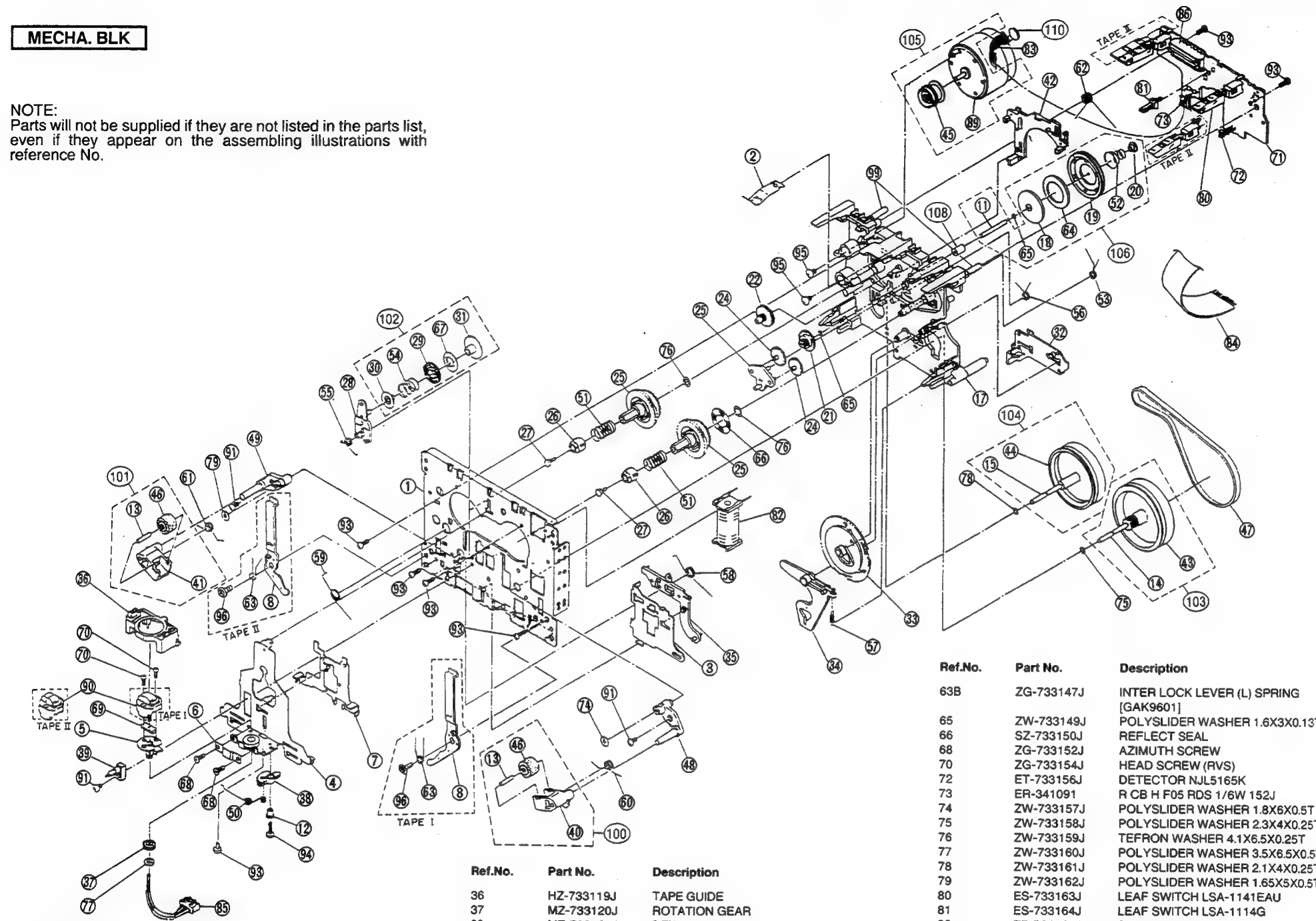
1.RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

| Ref.No. | Part No. | Description | Ref.No. | Part No. | Description |
|---------|-------------|--|---------|------------|---|
| 1 | AX-408738M | REMOCON RC-S650 | 53 | ET-369248 | TR DTA114YS |
| 2 | BB-408737M | MECHA GAK9301 [TAPE 1] | 54 | ET-375983 | TR DTA124TS |
| 3 | BB-408736M | MECHA GAK9601 [TAPE 2] | 55 | ET-373382 | TR DTA143ZS |
| 4 | BM-729992J | MOTOR EG530KD-2B | 56 | ET-373985 | TR DTA144TS |
| 5 | *BT-408729M | TRANS POW C1029 BS [550] | 57 | ET-354365 | TR DTC114YS |
| 6 | *BT-408728M | TRANS POW C1029 EV [550] | 58 | ET-373485 | TR DTC123JS |
| 7 | *BT-408727M | TRANS POW C1029 U [550] | 59 | ET-375986 | TR DTC124TS |
| 8 | *BT-408732M | TRANS POW C1030 BS [650] | 60 | ET-354364 | TR DTC143TS |
| 9 | *BT-408731M | TRANS POW C1030 EV [650] | 61 | ET-373391 | TR DTC143ZS |
| 10 | *BT-408730M | TRANS POW C1030 U [650] | 62 | ET-354414 | TR DTC144ES |
| 11 | ED-394509J | D LED GL3HY43 ORANGE | 63 | ET-370310 | TR DTC144TS |
| 12 | ED-394724J | D LED GL3PR43 RED | 64 | ET-408777J | TR FET 2SJ40 D,E T05 |
| 13 | ED-307572 | D SILICON H 1SS131 | 65 | ET-408709J | TR FET 2SK373 Y,GR T05 |
| 14 | *ED-394708J | D SILICON RBA402 200/4.0A | 66 | ET-348302 | TR FET 2SK381 C,D F05 |
| 15 | ED-511907 | D SILICON 1N4002 100/1.0A | 67 | ET-353899 | TR 2SA1317 S,T,U |
| 16 | ED-408743J | D ZENER H HZS11B3L | 68 | ET-408772J | TR 2SA1318 S,T,U T05 |
| 17 | ED-388320J | D ZENER H HZS12B3L | 69 | *ET-352726 | TR 2SA1392 T,U |
| 18 | ED-391003J | D ZENER H HZS4C3 | 70 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| 19 | ED-400171J | D ZENER H HZS6C2L | 71 | ET-361736 | TR 2SC3576 |
| 20 | *EF-359007 | FUSE BET T 250V 1.25A [U,B,S] [550] | 72 | ET-400741J | TR 2SC3708 T T05 |
| 21 | *EF-364518 | FUSE BET T 250V 2.50A [550] | 73 | *ET-366581 | TR 2SD1762 E,F |
| 22 | *EF-359225 | FUSE BET T 250V 3.15A [650] | 74 | *ET-373025 | TR 2SD1944 J1,J2,K |
| 23 | *EF-359086 | FUSE BET T 250V 4.00A [650] | 75 | ET-396072J | TR 2SD2159 V,W |
| 24 | *EF-358974 | FUSE BET T 250V 630MA | 76 | EV-394561J | R S-FIX H V8K4-11 (1S) 0.10W102 |
| 25 | *EF-601964 | FUSE SEMKO T 250V 1.60A [U,B,S] [650] | 77 | EV-404323J | R S-FIX H V8K4-11 (1S) 0.10W332 [650] |
| 26 | EH-408820J | COMP R RGL10T 472J | 78 | EV-367524 | R S-FIX H V8K4-11 (1S) 0.10W501 |
| 27 | EI-389322J | IC CXA1101P [550] | 79 | EV-341249 | R S-FIX V TM8KH1-1S 0.50W303 [650] |
| 28 | EI-394573J | IC CXA1331S [650] | 80 | EV-403967J | R S-FIX V T05EVNDCAA03 0.1W332 [650] |
| 29 | EI-387938J | IC HD74LS05P | 81 | EV-408707J | VR ROTARY RK11K1140 SP W104 [BALANCE VR] |
| 30 | EI-394574J | IC LA2000 | 82 | EV-408811J | VR SPL RK16EUWMZ1 B104X2 [MAIN VR] |
| 31 | EI-393323J | IC M5218AL-771 | 83 | EW-733168J | 3P HEAD WIRE ASSY [GAK9301] |
| 32 | *EI-394709J | IC STK4142-2 [550] | 84 | EW-733169J | 5P HEAD WIRE ASSY [GAK9601] |
| 33 | *EI-358554 | IC STK4152II [650] | 85 | HP-733172J | ROTATION HEAD MK10P-AB2N3 [GAK9301] |
| 34 | EI-310036 | IC TC4066BP | 86 | HR-733173J | ROTATION HEAD YK56R-AA4N3 [GAK9601] |
| 35 | EI-408700J | IC UPD75108CW-W03 MXA1DK1 | 87 | HZ-733119J | TAPE GUIDE |
| 36 | EI-373957J1 | OSC CE CST4.19MGW 4.194MHZ | 88 | MB-733130J | DRIVE BELT (A) |
| 37 | EO-337880 | COIL FIX 2 202AK-018 2R2K | 89 | MR-733129J | P ROLLER |
| 38 | EO-408702J | COIL TUN 1 100Z-121 100.00KHZ | 90 | MZ-733132J | HOUSING ASSY (L) |
| 39 | EP-733165J | SOLENOID ASSY | 91 | MZ-733131J | HOUSING ASSY (R) |
| 40 | *ER-331188 | R FUSE H S10 ERD2FC 1/4W 8R2J | | | |
| 41 | *ER-401042J | R FUSE V T05 ERD2FCV 1/4W33R0G | | | |
| 42 | *ER-408716J | R FUSE V T05 ERD2FCV 1/4W56R0G | | | |
| 43 | ER-397193J | R OMF V T05 FS 1W 100J | | | |
| 44 | ER-397194J | R OMF V T05 FS 1W 331J | | | |
| 45 | ES-733164J | LEAF SWITCH LSA-1114G | | | |
| 46 | ES-733163J | LEAF SWITCH LSA-1141EAU | | | |
| 47 | ES-408695J | SW PUSH SPUL12 2-02-02N [SURROUND SW] | | | |
| 48 | *ES-349070 | SW SELECTOR YKS11-0002 02-4 | | | |
| 49 | ES-408706J | SW SLIDE SSSS91 L=2 1-01-02N [550] | | | |
| 50 | ES-408708J | SW SLIDE SSSS91 L=2 1-01-03 [650] | | | |
| 51 | ES-408703J | SW TACT EVQ 233 05R T05 [POWER SW] | | | |
| 52 | ET-733156J | DETECTOR NJL5165K | | | |

MECHA. BLK

NOTE:
Parts will not be supplied if they are not listed in the parts list,
even if they appear on the assembling illustrations with
reference No.



2. MECHA BLK

| Ref.No. | Part No. | Description |
|---------|------------|------------------------|
| 2 | ZG-733087J | PACK SPRING |
| 3 | ML-733088J | SHIFT LEVER |
| 5 | HZ-733090J | HEAD PLATE ASSY |
| 6 | ZG-733091J | AZIMUTH SPRING |
| 12 | MZ-733096J | COLLAR |
| 13 | MS-733097J | PINCH ROLLER ARM SHAFT |
| 21 | MZ-733104J | CLUTCH GEAR |
| 22 | MZ-733105J | REW GEAR |
| 23 | ML-733106J | ER ARM |
| 24 | MZ-733107J | FR GEAR |
| 25 | MZ-733108J | REEL GEAR |
| 26 | MT-733109J | REEL CAP (A) |
| 27 | MT-733110J | REEL BUSH (B) |
| 28 | ML-733111J | PLAY ARM |
| 32 | ML-733115J | SHIFT LEVER SELECT |
| 33 | MZ-733116J | PLAY CAM GEAR |
| 34 | ML-733117J | TRIGGER ARM |
| 35 | ML-733118J | SELECT ARM |

| Ref.No. | Part No. | Description |
|---------|------------|--|
| 36 | HZ-733119J | TAPE GUIDE |
| 37 | MZ-733120J | ROTATION GEAR |
| 38 | MZ-733121J | RETURN GEAR |
| 39 | MS-733122J | CASSETTE GUIDE |
| 40 | ML-733123J | P ROLLER ARM (R) |
| 41 | ML-733124J | P ROLLER ARM (L) |
| 42 | ML-733125J | BRAKE ARM |
| 45 | MR-733128 | MOTOR PULLEY |
| 46 | MR-733129J | P ROLLER |
| 47 | MB-733130J | DRIVE BELT (A) |
| 48 | MZ-733131J | HOUSING ASSY (R) |
| 49 | MZ-733132J | HOUSING ASSY (L) |
| 50 | ZG-733133J | RETURN SPRING |
| 51 | ZG-733134J | REEL SPRING |
| 53 | ZG-733136J | CLUTCH ARM SPRING |
| 55 | ZG-733138J | PLAY ARM SPRING |
| 56 | ZG-733139J | SHIFT LEVER SELECT SPRING |
| 57 | ZG-733140J | TRIGGER ARM SPRING |
| 58 | ZG-733141J | SHIFT SPRING |
| 59 | ZG-733142J | HEAD CHASSIS SPRING |
| 60 | ZG-733143J | P ROLLER ARM (R) SPRING |
| 61 | ZG-733144J | P ROLLER ARM (L) SPRING |
| 62 | ZG-733145J | BRAKE ARM SPRING |
| 63A | ZG-733146J | INTER LOCK LEVER (R) SPRING [GAK9301] |

| Ref.No. | Part No. | Description |
|---------|------------|--|
| 63B | ZG-733147J | INTER LOCK LEVER (L) SPRING [GAK9601] |
| 65 | ZW-733149J | POLYSLIDER WASHER 1.6X3X0.13T |
| 66 | SZ-733150J | REFLECT SEAL |
| 68 | ZG-733152J | AZIMUTH SCREW |
| 70 | ZG-733154J | HEAD SCREW (RVS) |
| 72 | ET-733156J | DETECTOR NJL5165K |
| 73 | ER-341091 | R CB H F05 RDS 1/6W 152J |
| 74 | ZW-733157J | POLYSLIDER WASHER 1.8X6X0.5T |
| 75 | ZW-733158J | POLYSLIDER WASHER 2.3X4X0.25T |
| 76 | ZW-733159J | TEFRON WASHER 4.1X6.5X0.25T |
| 77 | ZW-733160J | POLYSLIDER WASHER 3.5X6.5X0.5T |
| 78 | ZW-733161J | POLYSLIDER WASHER 2.1X4X0.25T |
| 79 | ZW-733162J | POLYSLIDER WASHER 1.65X5X0.5T |
| 80 | ES-733163J | LEAF SWITCH LSA-1141EAU |
| 81 | ES-733164J | LEAF SWITCH LSA-1114G |
| 82 | EP-733165J | SOLENOID ASSY |
| 84 | EW-733167J | 15P FLAT RIBBON WIRE |
| 85A | EW-733168J | 3P HEAD WIRE ASSY [GAK9301] |
| 85B | EW-733169J | 5P HEAD WIRE ASSY [GAK9601] |
| 86 | EJ-733170J | CONNECTOR 52004-1510 |
| 89 | BM-729992J | MOTOR EG530KD-2B |
| 90A | HP-733172J | ROTATION HEAD MK10P-AB2N3 [GAK9301] |
| 90B | HR-733173J | ROTATION HEAD YK56R-AA4N3 [GAK9601] |
| 91 | ZS-460440 | PAN20X04STL CMT |
| 93 | ZS-321320 | BT PAN20X06STL CMT |
| 94 | ZS-733174J | TAPPING SCREW 1.7X8 |
| 95 | ZS-432843 | PAN26X04STL CMT |
| 96 | ZS-733175J | WASHER HEAD SCREW 20X6 |
| 99 | MA-733176J | MECHA BASE ASSY |
| 102 | BZ-733179J | PLAY GEAR ASSY |
| 103 | BF-733191J | FLYWHEEL (R) ASSY |
| 104 | BF-733192J | FLYWHEEL (L) ASSY |
| 106 | BZ-733194J | CLUTCH ASSY |
| 110 | EC-322028 | C CE V F05 SL 101J 50DC |

PARTS LIST

AX-550/650

3. P.C BOARD BLK

| Ref.No. | Part No. | Description |
|---------|---------------|--|
| 1A | BA-C1029T050A | ML PC (#) MAIN-AXBLKAX-550 (U) /ML [U] |
| 1B | BA-C1029T050B | ML PC (#) MAIN-AXBLKAX-550 (E) /ML [E] |
| 1C | BA-C1029T050C | ML PC (#) MAIN-AXBLKAX-550 (V) /ML [V] |
| 1D | BA-C1029T050D | ML PC (#) MAIN-AXBLKAX-550 (B) /ML [B,S] |
| 1E | BA-C1029T050E | ML PC (#) MAIN-AXBLKAX-650 (U) /ML [U] |
| 1F | BA-C1029T050F | ML PC (#) MAIN-AXBLKAX-650 (E) /ML [E] |
| 1G | BA-C1029T050G | ML PC (#) MAIN-AXBLKAX-650 (V) /ML [V] |
| 1H | BA-C1029T050H | ML PC (#) MAIN-AXBLKAX-650 (B) /ML [B,S] |
| 2A | BA-C1029T060A | ML PC (#) DECK-AXBLKAX-550/ML |
| 2B | BA-C1029T060B | ML PC (#) DECK-AXBLKAX-650/ML |

PC (#) MAIN-AX BLK CONSISTS OF FOLLOWING P.C BOARD.

- MAIN AMP P.C BOARD
- POWER SUPPLY P.C BOARD
- BALANCE VR P.C BOARD
- MAIN VR P.C BOARD
- PHONE/SUR P.C BOARD
- POWER SW P.C BOARD
- LED P.C BOARD

PC (#) DECK-AX BLK CONSISTS OF FOLLOWING P.C BOARD.

- MAIN P.C BOARD
- OPERATION P.C BOARD

4. MAIN ANP P.C BOARD

| Ref.No. | Part No. | Description |
|---------|-------------|----------------------------------|
| C83A | EC-383075J | C EC V CUT SME 332M 35.0DC [550] |
| C83B | EC-394535J | C EC V CUT SME 332M 45.0DC [650] |
| C84A | EC-383075J | C EC V CUT SME 332M 35.0DC [550] |
| C84B | EC-394535J | C EC V CUT SME 332M 45.0DC [650] |
| D1 | *ED-394708J | D SILICON RBA402 200/4.0A |
| D2 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D3 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D4 | ED-307572 | D SILICON H 1SS131 |
| D5 | ED-388320J | D ZENER H HZS12B3L |
| D6 | ED-307572 | D SILICON H 1SS131 |
| D7 | ED-307572 | D SILICON H 1SS131 |
| D8 | ED-511907 | D SILICON 1N4002 100/1.0A |
| FR1 | *ER-331188 | R FUSE H S10 ERD2FC 1/4W 8R2J |
| FR2 | *ER-408716J | R FUSE V T05 ERD2FCV 1/4W56R0G |
| IC1A | *EI-394709J | IC STK4142-2 [550] |
| IC1B | *EI-358554 | IC STK4152II [650] |
| L1 | EO-337880 | COIL FIX 2 202AK-018 2R2K |
| L2 | EO-337880 | COIL FIX 2 202AK-018 2R2K |
| R9 | ER-397193J | R OMF V T05 FS 1W 100J |
| R10 | ER-397193J | R OMF V T05 FS 1W 100J |
| R59 | ER-397193J | R OMF V T05 FS 1W 100J |
| R60 | ER-397193J | R OMF V T05 FS 1W 100J |
| TR1 | ET-354365 | TR DTC114YS |
| TR2 | ET-375983 | TR DTA124TS |
| F201A | *EF-364518 | FUSE BET T 250V 2.50A [550] |
| F201B | *EF-359225 | FUSE BET T 250V 3.15A [650] |
| F202A | *EF-364518 | FUSE BET T 250V 2.50A [550] |
| F202B | *EF-359225 | FUSE BET T 250V 3.15A [650] |
| F203A | *EF-359225 | FUSE BET T 250V 3.15A [550] |
| F203B | *EF-359086 | FUSE BET T 250V 4.00A [650] |
| F204A | *EF-359225 | FUSE BET T 250V 3.15A [550] |
| F204B | *EF-359086 | FUSE BET T 250V 4.00A [650] |

5. POWER SUPPLY P.C BOARD

| Ref.No. | Part No. | Description |
|---------|-------------|---|
| C201 | EC-363491 | C EC V CUT SME 222M 25.0DC |
| C203 | EC-363491 | C EC V CUT SME 222M 25.0DC |
| C251 | *EC-389414J | C CE V DE7 B102K 400AC |
| D201 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D202 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D203 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D204 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D205 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D206 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D207 | ED-388320J | D ZENER H HZS12B3L |
| D208 | ED-388320J | D ZENER H HZS12B3L |
| D209 | ED-388320J | D ZENER H HZS12B3L |
| D210 | ED-400171J | D ZENER H HZS6C2L |
| D211 | ED-400171J | D ZENER H HZS6C2L |
| D214 | ED-307572 | D SILICON H 1SS131 |
| D215 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D216 | ED-511907 | D SILICON 1N4002 100/1.0A |
| FR208 | *ER-401042J | R FUSE V T05 ERD2FCV 1/4W33R0G |
| J6 | EJ-408717J | SOCKET CFG1115-0121 RED 15P |
| L203 | EO-338409 | COIL LF FKOB160MH02 250UH |
| TM201 | EJ-408698J | TERMINAL PUSH LQR0810-0006 8P [SP TERMINAL] |
| TR201 | ET-348302 | TR FET 2SK381 C,D F05 |
| TR202 | *ET-366581 | TR 2SD1762 E,F |
| TR203 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR204 | *ET-373025 | TR 2SD1944 J1,J2,K |

| Ref.No. | Part No. | Description |
|---------|------------|---------------------------------------|
| TR205 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR206 | *ET-352726 | TR 2SA1392 T,U |
| TR207 | ET-353899 | TR 2SA1317 S,T,U |
| TR208 | ET-366581 | TR 2SD1762 E,F |
| TR209 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR210 | ET-354365 | TR DTC114YS |
| TR211 | *ET-366581 | TR 2SD1762 E,F |
| F1A | *EF-359007 | FUSE BET T 250V 1.25A [U,B,S] [550] |
| F1B | *EF-601964 | FUSE SEMKO T 250V 1.60A [U,B,S] [650] |
| F2A | *EF-359007 | FUSE BET T 250V 1.25A [U] [550] |
| F2B | *EF-601964 | FUSE SEMKO T 250V 1.60A [U] [650] |
| F101 | *EF-601964 | FUSE SEMKO T 250V 1.60A |
| F102 | *EF-601964 | FUSE SEMKO T 250V 1.60A |
| F103 | *EF-358974 | FUSE BET T 250V 630MA |
| F104 | *EF-358974 | FUSE BET T 250V 630MA |

6. BALANCE VR P.C BOARD

| Ref.No. | Part No. | Description |
|---------|------------|--|
| TR301 | ET-354365 | TR DTC114YS |
| TR302 | ET-353899 | TR 2SA1317 S,T,U |
| TR303 | ET-353899 | TR 2SA1317 S,T,U |
| TR304 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR305 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| VR301 | EV-408707J | VR ROTARY RK11K1140 SP W104 [BALANCE VR] |

7. MAIN VR P.C BOARD

| Ref.No. | Part No. | Description |
|---------|------------|------------------------------------|
| VR401 | EV-408811J | VR SPL RK16EUWMZ1 B104X2 [MAIN VR] |

8. PHONE/SUR P.C BOARD

| Ref.No. | Part No. | Description |
|---------|------------|---------------------------------------|
| J501 | EJ-394455J | PHONE J 3P YKB21-5006 6.3 |
| R501 | ER-397194J | R OMF V T05 FS 1W 331J |
| R502 | ER-397194J | R OMF V T05 FS 1W 331J |
| SW501 | ES-408695J | SW PUSH SPUL12 2-02-02N [SURROUND SW] |

9. POWER SW P.C BOARD

| Ref.No. | Part No. | Description |
|---------|------------|------------------------------------|
| TS601 | ES-408703J | SW TACT EVQ 233 05R T05 [POWER SW] |

10. LED P.C BOARD

| Ref.No. | Part No. | Description |
|---------|------------|----------------------|
| D701 | ED-394509J | D LED GL3HY43 ORANGE |

11. MAIN P.C BOARD

| Ref.No. | Part No. | Description |
|---------|------------|-------------------------------|
| D101 | ED-307572 | D SILICON H 1SS131 |
| D151 | ED-307572 | D SILICON H 1SS131 |
| D301 | ED-307572 | D SILICON H 1SS131 |
| D351 | ED-307572 | D SILICON H 1SS131 |
| D401 | ED-391003J | D ZENER H HZS4C3 |
| D501 | ED-307572 | D SILICON H 1SS131 |
| D502 | ED-307572 | D SILICON H 1SS131 |
| D503 | ED-307572 | D SILICON H 1SS131 |
| D504 | ED-307572 | D SILICON H 1SS131 |
| D505 | ED-307572 | D SILICON H 1SS131 |
| D601 | ED-307572 | D SILICON H 1SS131 |
| D602 | ED-408743J | D ZENER H HZS11B3L |
| D651 | ED-307572 | D SILICON H 1SS131 |
| D652 | ED-307572 | D SILICON H 1SS131 |
| D725 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D726 | ED-511907 | D SILICON 1N4002 100/1.0A |
| D761 | ED-307572 | D SILICON H 1SS131 |
| D762 | ED-307572 | D SILICON H 1SS131 |
| D763 | ED-624903 | D SILICON H 1S2473 |
| FL101 | EO-408702J | COIL TUN 1 100Z-121 100.00KHZ |
| FL151 | EO-408702J | COIL TUN 1 100Z-121 100.00KHZ |
| FL301 | EO-408702J | COIL TUN 1 100Z-121 100.00KHZ |
| FL351 | EO-408702J | COIL TUN 1 100Z-121 100.00KHZ |
| IB601 | EH-408820J | COMP R RGL10T 472J |
| IB602 | EH-408713J | COMP R RGL18T 332J |
| IB603 | EH-408821J | COMP R RGL12T 473J |
| IC101 | EI-310036 | IC TC4066BP |
| IC102 | EI-393323J | IC M5218AL-771 |
| IC201 | EI-389322J | IC CXA1101P |
| IC202 | EI-394573J | IC CXA1331S |
| IC301 | EI-393323J | IC M5218AL-771 |
| IC551 | EI-394574J | IC LA2000 |
| IC601 | EI-408700J | IC UPD75108CW-W03 MXA1DK1 |
| IC802 | EI-387938J | IC HD74LS05P |
| J201 | EJ-394445J | SOCKET 52303-1411 BLACK 14P |
| L301 | EO-394589J | COIL FIX 1 RCP095 822J |
| L302 | EO-393645J | COIL FIX 1 RCP095 392J |
| L351 | EO-394589J | COIL FIX 1 RCP095 822J |
| L352 | EO-393645J | COIL FIX 1 RCP095 392J |
| L401 | EO-403270J | COIL FIX 1 EL0405RA T05 101J |
| T401 | EO-408699J | COIL OSC 1 T2134 100.0KHZ |
| TR101 | ET-408709J | TR FET 2SK373 Y,GR T05 |
| TR102 | ET-375986 | TR DTC124TS |
| TR103 | ET-354364 | TR DTC143TS |
| TR104 | ET-354364 | TR DTC143TS |
| TR105 | ET-354364 | TR DTC143TS |
| TR106 | ET-354364 | TR DTC143TS |
| TR107 | ET-370310 | TR DTC144TS |
| TR108 | ET-370310 | TR DTC144TS |
| TR151 | ET-408709J | TR FET 2SK373 Y,GR T05 |
| TR152 | ET-375986 | TR DTC124TS |
| TR153 | ET-354364 | TR DTC143TS |
| TR154 | ET-354364 | TR DTC143TS |
| TR155 | ET-354364 | TR DTC143TS |
| TR156 | ET-354364 | TR DTC143TS |
| TR157 | ET-370310 | TR DTC144TS |
| TR158 | ET-370310 | TR DTC144TS |
| TR181 | ET-369248 | TR DTA114YS |
| TR182 | ET-370310 | TR DTC144TS |
| TR183 | ET-370310 | TR DTC144TS |
| TR184 | ET-369248 | TR DTA114YS |
| TR185 | ET-369248 | TR DTA114YS |
| TR186 | ET-369248 | TR DTC144YS |
| TR187 | ET-354414 | TR DTC144ES |
| TR188 | ET-354414 | TR DTC144ES |
| TR201 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR202 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR251 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR252 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR281 | ET-354414 | TR DTC144ES |
| TR301 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR302 | ET-354364 | TR DTC143TS |
| TR303 | ET-354364 | TR DTC143TS |
| TR304 | ET-354364 | TR DTC143TS |
| TR305 | ET-408777J | TR FET 2SJ40 D,E T05 |

| Ref.No. | Part No. | Description |
|---------|-------------|---------------------------------|
| TR351 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR352 | ET-354364 | TR DTC143TS |
| TR353 | ET-354364 | TR DTC143TS |
| TR354 | ET-354364 | TR DTC143TS |
| TR355 | ET-408777J | TR FET 2SJ40 D,E T05 |
| TR381 | ET-369248 | TR DTA114YS |
| TR401 | ET-354414 | TR DTC144ES |
| TR402 | ET-354414 | TR DTC144ES |
| TR403 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR404 | ET-373391 | TR DTC143ZS |
| TR405 | ET-373025 | TR 2SD1944 J1,J2,K |
| TR406 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR407 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR408 | ET-354364 | TR DTC143TS |
| TR409 | ET-400741J | TR 2SC3708 T T05 |
| TR410 | ET-400741J | TR 2SC3708 T T05 |
| TR501 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR502 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR503 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR504 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR505 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR506 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR601 | ET-373485 | TR DTC123JS |
| TR602 | ET-354365 | TR DTC114YS |
| TR603 | ET-373382 | TR DTA143ZS |
| TR606 | ET-354365 | TR DTC114YS |
| TR607 | ET-354365 | TR DTC114YS |
| TR608 | ET-361736 | TR 2SC3576 |
| TR609 | ET-361736 | TR 2SC3576 |
| TR610 | ET-373485 | TR DTC123JS |
| TR611 | ET-373391 | TR DTC143ZS |
| TR612 | ET-361736 | TR 2SC3576 |
| TR613 | ET-361736 | TR 2SC3576 |
| TR614 | ET-373485 | TR DTC123JS |
| TR615 | ET-373391 | TR DTC143ZS |
| TR616 | ET-373391 | TR DTC143ZS |
| TR617 | ET-408772J | TR 2SA1318 S,T,U T05 |
| TR618 | ET-408772J | TR 2SA1318 S,T,U T05 |
| TR653 | ET-353899 | TR 2SA1317 S,T,U |
| TR654 | ET-353899 | TR 2SA1317 S,T,U |
| TR655 | ET-373382 | TR DTA143ZS |
| TR656 | ET-396072J | TR 2SD2159 V,W |
| TR657 | ET-396072J | TR 2SD2159 V,W |
| TR658 | ET-396072J | TR 2SD2159 V,W |
| TR659 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR660 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR761 | ET-373985 | TR DTA144TS |
| TR762 | ET-354414 | TR DTC144ES |
| TR763 | ET-354414 | TR DTC144ES |
| TR764 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR765 | ET-354414 | TR DTC144ES |
| VR101 | EV-404323J | R S-FIX H V8K4-11 (1S) 0.10W332 |
| VR102 | EV-404323J | R S-FIX H V8K4-11 (1S) 0.10W332 |
| VR151 | EV-404323J | R S-FIX H V8K4-11 (1S) 0.10W332 |
| VR152 | EV-404323J | R S-FIX H V8K4-11 (1S) 0.10W332 |
| VR301 | EV-403967J | R S-FIX V T05EVNDCAA03 0.1W332 |
| VR351 | EV-403967J | R S-FIX V T05EVNDCAA03 0.1W332 |
| VR402 | EV-341249 | R S-FIX V TM8KH1-1S 0.50W303 |
| VR403 | EV-341249 | R S-FIX V TM8KH1-1S 0.50W303 |
| VR651 | EV-394561J | R S-FIX H V8K4-11 (1S) 0.10W102 |
| VR652 | EV-394561J | R S-FIX H V8K4-11 (1S) 0.10W102 |
| VR653 | EV-367524 | R S-FIX H V8K4-11 (1S) 0.10W501 |
| VR654 | EV-367524 | R S-FIX H V8K4-11 (1S) 0.10W501 |
| X601 | EI-373957J1 | OSC CE CST4.19MGW 4.194MHZ |

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12. OPERATION P.C BOARD

| Ref.No. | Part No. | Description |
|---------|------------|---------------------------------------|
| D801 | ED-394509J | D LED GL3HY43 ORANGE |
| D802 | ED-394509J | D LED GL3HY43 ORANGE |
| D803 | ED-394509J | D LED GL3HY43 ORANGE |
| D804 | ED-394509J | D LED GL3HY43 ORANGE |
| D805 | ED-394509J | D LED GL3HY43 ORANGE |
| D806 | ED-394509J | D LED GL3HY43 ORANGE |
| D807 | ED-394509J | D LED GL3HY43 ORANGE |
| D808 | ED-394509J | D LED GL3HY43 ORANGE |
| D809 | ED-394724J | D LED GL3PR43 RED |
| SW801A | ES-408706J | SW SLIDE SSSS91 L=2 1-01-02N [550] |
| SW801B | ES-408708J | SW SLIDE SSSS91 L=2 1-01-03 [650] |
| TS801 | ES-408703J | SW TACT EVQ 233 05R T05 |
| TS802 | ES-408703J | SW TACT EVQ 233 05R T05 |
| TS803 | ES-408703J | SW TACT EVQ 233 05R T05 |
| TS804 | ES-408703J | SW TACT EVQ 233 05R T05 |
| TS805 | ES-408703J | SW TACT EVQ 233 05R T05 |
| TS806 | ES-408703J | SW TACT EVQ 233 05R T05 |
| TS807 | ES-408703J | SW TACT EVQ 233 05R T05 |
| TS808 | ES-408703J | SW TACT EVQ 233 05R T05 |
| TS809 | ES-408703J | SW TACT EVQ 233 05R T05 |
| TS810 | ES-408703J | SW TACT EVQ 233 05R T05 |
| TS811 | ES-408703J | SW TACT EVQ 233 05R T05 |

13. FINAL ASSEMBLY

| Ref.No. | Part No. | Description |
|---------|-------------|----------------------------------|
| 1A | SP-407847M | PANEL FRONT AX-550 (SG) [550] |
| 1B | SP-407848M | PANEL FRONT AX-650 (SG) [650] |
| 2 | SE-394092M | REFLECTOR (SG) |
| 3 | SZ-407871M | RING FOOT (A) (SG) |
| 4 | SA-394136M | CUSHION FOOT (SG) |
| 5 | SZ-408739J | PUSH CATCH 4U44 |
| 6 | SE-407868M | LENS OP (L) (SG) |
| 7 | SE-407869M | LENS OP (R) (SG) |
| 8 | SB-407860M | BUTTON OP (SG) |
| 9 | SB-407861M | BUTTON TAPE (SG) |
| 10 | SK-407866M | KNOB SLIDE (SG) |
| 11 | ZS-331182 | BT BID30X08STL BNI |
| 12 | SB-407862M | BUTTON POWER (SG) |
| 13 | SB-407863M | BUTTON SURROUND (SG) |
| 14 | ZS-407886M | BT PAN30X08STL BZN C100 (SG) |
| 15 | SP-407849M | LID PANEL (L) (SG) |
| 16 | SP-407850M | LID PANEL (R) (SG) |
| 17 | SE-407870M | WINDOW LID (SG) |
| 18 | ZG-394158M | SP PLATE CASSETTE HOLDER (SG) |
| 19 | MZ-408740J | DUMPER 2G50-C |
| 20 | ZS-357727 | ST PAN20X05STL CMT |
| 21 | BB-408737M | MECHA GAK9301 [TAPE 1] |
| 22 | BB-408736M | MECHA GAK9601 [TAPE 2] |
| 23 | ZG-407841J | SP TORSION EJECT (L) |
| 24 | ZG-407842J | SP TORSION EJECT (R) |
| 25 | SA-407840M | CUSHION FOOT REAR (SG) |
| 26 | ZS-376591 | BT BID30X06STL BNI |
| 27 | ZS-725336J | BT BID30X16STL BNI |
| 28A | *BT-408727M | TRANS POW C1029 U [550] |
| 28B | *BT-408728M | TRANS POW C1029 EV [550] |
| 28C | *BT-408729M | TRANS POW C1029 BS [550] |
| 28D | *BT-408730M | TRANS POW C1030 U [650] |
| 28E | *BT-408731M | TRANS POW C1030 EV [650] |
| 28F | *BT-408732M | TRANS POW C1030 BS [650] |
| 29 | ZS-346742 | ST BID40X08STL CMT CUP |
| 30A | SP-407856M | PANEL REAR AX-550 (U) (SG) |
| 30B | SP-407855M | PANEL REAR AX-550 (E) (SG) |
| 30C | SP-407857M | PANEL REAR AX-550 (V) (SG) |
| 30D | SP-407858M | PANEL REAR AX-550 (B,S) (SG) |
| 30E | SP-407852M | PANEL REAR AX-650 (U) (SG) |
| 30F | SP-407851M | PANEL REAR AX-650 (E) (SG) |
| 30G | SP-407853M | PANEL REAR AX-650 (V) (SG) |
| 30H | SP-407854M | PANEL REAR AX-650 (B,S) (SG) |
| 31 | ZS-366385 | T2BR30X08STL BNI PROJECTION |
| 32A | *EW-408790M | AC CORD200 SZ4W H03VVH2F B120 U |
| 32B | *EW-404002M | AC CORD 200 SE-1 WITH TUBE E |
| 32C | *EW-404001M | AC CORD 200 VCTFK WITH TUBE B |
| 32D | *EW-404003M | AC CORD 200 SA-2 WITH TUBE S |
| 33 | *EZ-371605 | BUSH CORD 2271 |
| 34 | *ES-349070 | SW SELECTOR YKS11-0002 02-4 |
| 35 | SE-407867M | LENS VR (SG) |
| 36 | SK-407864M | KNOB VR (SG) |
| 37 | SK-407865M | KNOB BALANCE (SG) |
| 38 | SP-407859M | COVER UPPER (SG) |

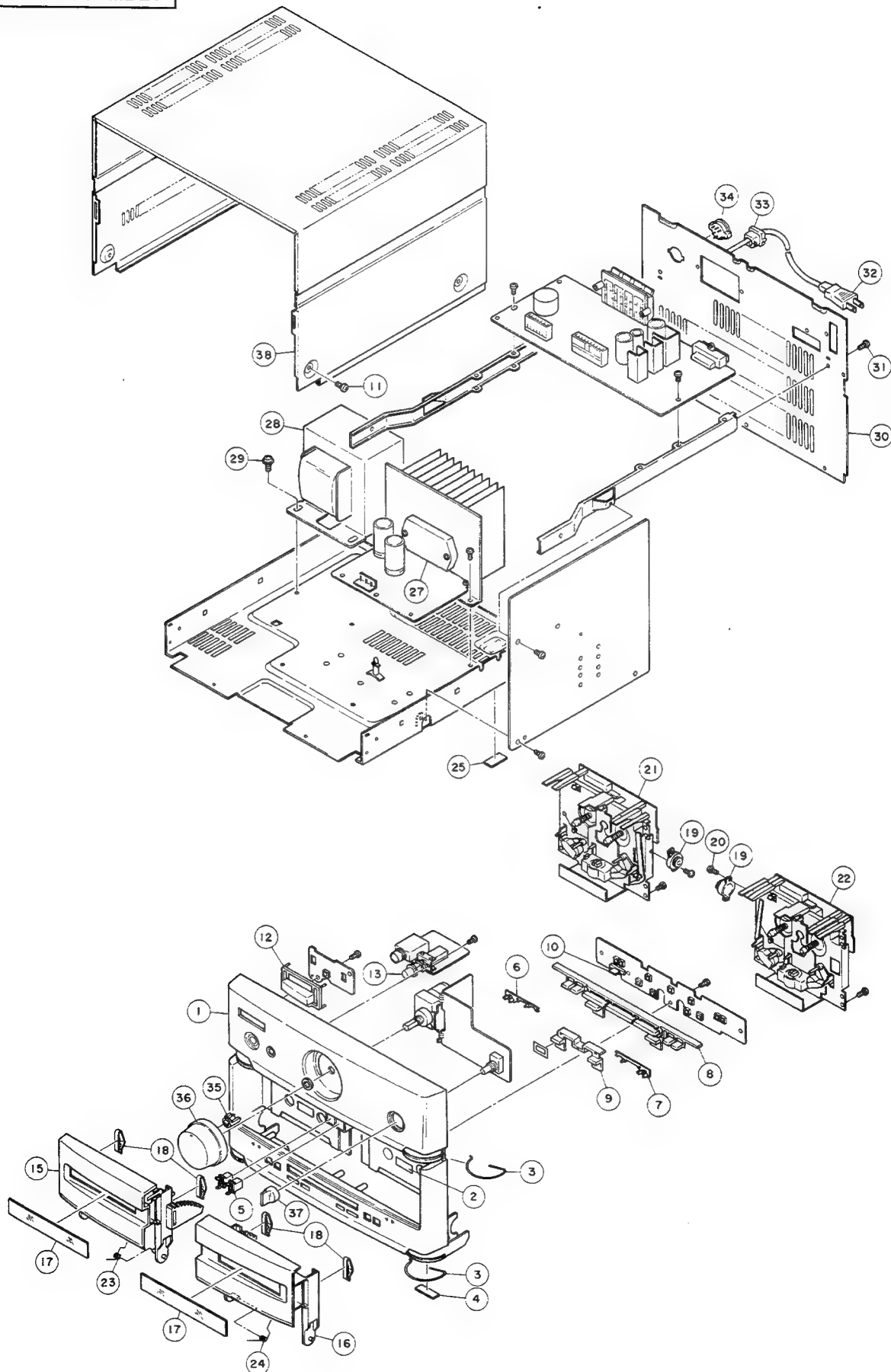
NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

14. ACCESSORY

| Ref.No. | Part No. | Description |
|---------|------------|-----------------|
| 1 | AX-408738M | REMOCON RC-S650 |

FINAL ASSEMBLY



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| Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. |
|--------------|----------|------------|----------|-----------|-----------|-----------|----------|
| AX408738M | 14-1 | ED511907 | 4-D8 | ER408716J | 4-FR2 | ET373025 | 11-TR405 |
| BAC1029T050A | 3-1A | ED511907 | 5-D201 | ES349070 | 13-34 | ET373382 | 11-TR603 |
| BAC1029T050B | 3-1B | ED511907 | 5-D202 | ES408695J | 8-SW501 | ET373382 | 11-TR655 |
| BAC1029T050C | 3-1C | ED511907 | 5-D203 | ES408703J | 9-TS601 | ET373391 | 11-TR404 |
| BAC1029T050D | 3-1D | ED511907 | 5-D204 | ES408703J | 12-TS801 | ET373391 | 11-TR611 |
| BAC1029T050E | 3-1E | ED511907 | 5-D205 | ES408703J | 12-TS802 | ET373391 | 11-TR615 |
| BAC1029T050F | 3-1F | ED511907 | 5-D206 | ES408703J | 12-TS803 | ET373391 | 11-TR616 |
| BAC1029T050G | 3-1G | ED511907 | 5-D215 | ES408703J | 12-TS804 | ET373485 | 11-TR601 |
| BAC1029T050H | 3-1H | ED511907 | 5-D216 | ES408703J | 12-TS805 | ET373485 | 11-TR610 |
| BAC1029T060A | 3-2A | ED511907 | 11-D725 | ES408703J | 12-TS806 | ET373485 | 11-TR614 |
| BAC1029T060B | 3-2B | ED511907 | 11-D726 | ES408703J | 12-TS807 | ET373985 | 11-TR761 |
| BB408736M | 13-22 | ED624903 | 11-D763 | ES408703J | 12-TS808 | ET375983 | 4-TR2 |
| BB408737M | 13-21 | EF358974 | 5-F103 | ES408703J | 12-TS809 | ET375986 | 11-TR102 |
| BF733191J | 2-103 | EF358974 | 5-F104 | ES408703J | 12-TS810 | ET375986 | 11-TR152 |
| BF733192J | 2-104 | EF359007 | 5-F1A | ES408703J | 12-TS811 | ET396072J | 11-TR656 |
| BT408727M | 13-28A | EF359007 | 5-F2A | ES408706J | 12-SW801A | ET396072J | 11-TR657 |
| BT408728M | 13-28B | EF359086 | 4-F203B | ES408708J | 12-SW801B | ET396072J | 11-TR658 |
| BT408729M | 13-28C | EF359086 | 4-F204B | ES733163J | 2-80 | ET397160J | 5-TR203 |
| BT408730M | 13-28D | EF359225 | 4-F201B | ES733164J | 2-81 | ET397160J | 5-TR205 |
| BT408731M | 13-28E | EF359225 | 4-F202B | ET348302 | 5-TR201 | ET397160J | 5-TR209 |
| BT408732M | 13-28F | EF359225 | 4-F203A | ET352726 | 5-TR206 | ET397160J | 6-TR304 |
| BZ733179J | 2-102 | EF359225 | 4-F204A | ET353899 | 5-TR207 | ET397160J | 6-TR305 |
| BZ733194J | 2-106 | EF364518 | 4-F201A | ET353899 | 6-TR302 | ET397160J | 11-TR201 |
| EC322028 | 2-110 | EF364518 | 4-F202A | ET353899 | 6-TR303 | ET397160J | 11-TR202 |
| EC363491 | 5-C201 | EF601964 | 5-F1B | ET353899 | 11-TR653 | ET397160J | 11-TR251 |
| EC363491 | 5-C203 | EF601964 | 5-F2B | ET353899 | 11-TR654 | ET397160J | 11-TR252 |
| EC383075J | 4-C83A | EF601964 | 5-F101 | ET354364 | 11-TR103 | ET397160J | 11-TR301 |
| EC383075J | 4-C84A | EF601964 | 5-F102 | ET354364 | 11-TR104 | ET397160J | 11-TR351 |
| EC389414J | 5-C251 | EH408713J | 11-IB602 | ET354364 | 11-TR105 | ET397160J | 11-TR403 |
| EC394535J | 4-C83B | EH408820J | 11-IB601 | ET354364 | 11-TR106 | ET397160J | 11-TR406 |
| EC394535J | 4-C84B | EH408821J | 11-IB603 | ET354364 | 11-TR153 | ET397160J | 11-TR407 |
| ED307572 | 4-D4 | EI310036 | 11-IC101 | ET354364 | 11-TR154 | ET397160J | 11-TR501 |
| ED307572 | 4-D6 | EI358554 | 4-IC1B | ET354364 | 11-TR155 | ET397160J | 11-TR502 |
| ED307572 | 4-D7 | EI373957J1 | 11-X601 | ET354364 | 11-TR156 | ET397160J | 11-TR503 |
| ED307572 | 5-D214 | EI387938J | 11-IC602 | ET354364 | 11-TR302 | ET397160J | 11-TR504 |
| ED307572 | 11-D101 | EI389322J | 11-IC201 | ET354364 | 11-TR303 | ET397160J | 11-TR505 |
| ED307572 | 11-D151 | EI393323J | 11-IC102 | ET354364 | 11-TR304 | ET397160J | 11-TR506 |
| ED307572 | 11-D301 | EI393323J | 11-IC301 | ET354364 | 11-TR352 | ET397160J | 11-TR559 |
| ED307572 | 11-D351 | EI394573J | 11-IC202 | ET354364 | 11-TR353 | ET397160J | 11-TR660 |
| ED307572 | 11-D501 | EI394574J | 11-IC551 | ET354364 | 11-TR354 | ET397160J | 11-TR764 |
| ED307572 | 11-D502 | EI394709J | 4-IC1A | ET354364 | 11-TR408 | ET400741J | 11-TR409 |
| ED307572 | 11-D503 | EI408700J | 11-IC601 | ET354365 | 4-TR1 | ET400741J | 11-TR410 |
| ED307572 | 11-D504 | EJ394445J | 11-J201 | ET354365 | 5-TR210 | ET408709J | 11-TR101 |
| ED307572 | 11-D505 | EJ394455J | 8-J501 | ET354365 | 6-TR301 | ET408709J | 11-TR151 |
| ED307572 | 11-D601 | EJ408698J | 5-TM201 | ET354365 | 11-TR602 | ET408772J | 11-TR617 |
| ED307572 | 11-D651 | EJ408717J | 5-J6 | ET354365 | 11-TR606 | ET408772J | 11-TR618 |
| ED307572 | 11-D652 | EJ733170J | 2-86 | ET354365 | 11-TR607 | ET408777J | 11-TR305 |
| ED307572 | 11-D761 | EO337880 | 4-L1 | ET354414 | 11-TR281 | ET408777J | 11-TR355 |
| ED307572 | 11-D762 | EO337880 | 4-L2 | ET354414 | 11-TR401 | ET733156J | 2-72 |
| ED388320J | 4-D5 | EO338409 | 5-L203 | ET354414 | 11-TR402 | EV341249 | 11-VR402 |
| ED388320J | 5-D207 | EO393645J | 11-L302 | ET354414 | 11-TR762 | EV341249 | 11-VR403 |
| ED388320J | 5-D208 | EO393645J | 11-L352 | ET354414 | 11-TR763 | EV367524 | 11-VR653 |
| ED388320J | 5-D209 | EO394589J | 11-L301 | ET354414 | 11-TR765 | EV367524 | 11-VR654 |
| ED391003J | 11-D401 | EO394589J | 11-L351 | ET361736 | 11-TR608 | EV394561J | 11-VR651 |
| ED394509J | 10-D701 | EO403270J | 11-L401 | ET361736 | 11-TR609 | EV394561J | 11-VR652 |
| ED394509J | 12-D801 | EO408699J | 11-T401 | ET361736 | 11-TR612 | EV403967J | 11-VR301 |
| ED394509J | 12-D802 | EO408702J | 11-FL101 | ET361736 | 11-TR613 | EV403967J | 11-VR351 |
| ED394509J | 12-D803 | EO408702J | 11-FL151 | ET366581 | 5-TR202 | EV404323J | 11-VR101 |
| ED394509J | 12-D804 | EO408702J | 11-FL301 | ET366581 | 5-TR208 | EV404323J | 11-VR102 |
| ED394509J | 12-D805 | EO408702J | 11-FL351 | ET366581 | 5-TR211 | EV404323J | 11-VR151 |
| ED394509J | 12-D806 | EP733165J | 2-82 | ET369248 | 11-TR181 | EV404323J | 11-VR152 |
| ED394509J | 12-D807 | ER331188 | 4-FR1 | ET369248 | 11-TR184 | EV408707J | 6-VR301 |
| ED394509J | 12-D808 | ER341091 | 2-73 | ET369248 | 11-TR381 | EV408811J | 7-VR401 |
| ED394708J | 4-D1 | ER397193J | 4-R9 | ET370310 | 11-TR107 | EW404001M | 13-32C |
| ED394724J | 12-D809 | ER397193J | 4-R10 | ET370310 | 11-TR108 | EW404002M | 13-32B |
| ED400171J | 5-D210 | ER397193J | 4-R59 | ET370310 | 11-TR157 | EW404003M | 13-32D |
| ED400171J | 5-D211 | ER397193J | 4-R60 | ET370310 | 11-TR158 | EW408790M | 13-32A |
| ED408743J | 11-D602 | ER397194J | 8-R501 | ET370310 | 11-TR182 | EW733167J | 2-84 |
| ED511907 | 4-D2 | ER397194J | 8-R502 | ET370310 | 11-TR183 | EW733168J | 2-85A |
| ED511907 | 4-D3 | ER401042J | 5-FR208 | ET373025 | 5-TR204 | EW733169J | 2-85B |

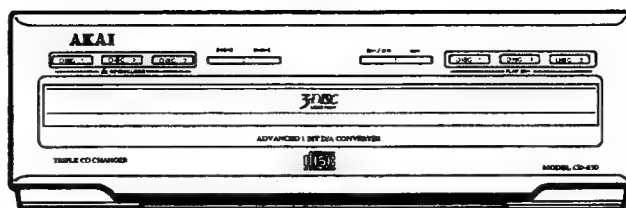
| Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. |
|-----------|----------|-----------|----------|----------|----------|----------|----------|
| EZ371605 | 13-33 | ZG733138J | 2-55 | | | | |
| HP733172J | 2-90A | ZG733139J | 2-56 | | | | |
| HR733173J | 2-90B | ZG733140J | 2-57 | | | | |
| HZ733090J | 2-5 | ZG733141J | 2-58 | | | | |
| HZ733119J | 2-36 | ZG733142J | 2-59 | | | | |
| MA733176J | 2-99 | ZG733143J | 2-60 | | | | |
| MB733130J | 2-47 | ZG733144J | 2-61 | | | | |
| ML733088J | 2-3 | ZG733145J | 2-62 | | | | |
| ML733106J | 2-23 | ZG733146J | 2-63A | | | | |
| ML733111J | 2-28 | ZG733147J | 2-63B | | | | |
| ML733115J | 2-32 | ZG733152J | 2-68 | | | | |
| ML733117J | 2-34 | ZG733154J | 2-70 | | | | |
| ML733118J | 2-35 | ZS321320 | 2-93 | | | | |
| ML733123J | 2-40 | ZS331182 | 13-11 | | | | |
| ML733124J | 2-41 | ZS346742 | 13-29 | | | | |
| ML733125J | 2-42 | ZS357727 | 13-20 | | | | |
| MR733129J | 2-46 | ZS366385 | 13-31 | | | | |
| MS733097J | 2-13 | ZS376591 | 13-26 | | | | |
| MS733122J | 2-39 | ZS407886M | 13-14 | | | | |
| MT733109J | 2-26 | ZS432843 | 2-95 | | | | |
| MT733110J | 2-27 | ZS460440 | 2-91 | | | | |
| MZ408740J | 13-19 | ZS725336J | 13-27 | | | | |
| MZ733096J | 2-12 | ZS733174J | 2-94 | | | | |
| MZ733104J | 2-21 | ZS733175J | 2-96 | | | | |
| MZ733105J | 2-22 | ZW733149J | 2-65 | | | | |
| MZ733107J | 2-24 | ZW733157J | 2-74 | | | | |
| MZ733108J | 2-25 | ZW733158J | 2-75 | | | | |
| MZ733116J | 2-33 | ZW733159J | 2-76 | | | | |
| MZ733120J | 2-37 | ZW733160J | 2-77 | | | | |
| MZ733121J | 2-38 | ZW733161J | 2-78 | | | | |
| MZ733131J | 2-48 | ZW733162J | 2-79 | | | | |
| MZ733132J | 2-49 | | | | | | |
| SA394136M | 13-4 | | | | | | |
| SA407840M | 13-25 | | | | | | |
| SB407860M | 13-8 | | | | | | |
| SB407861M | 13-9 | | | | | | |
| SB407862M | 13-12 | | | | | | |
| SB407863M | 13-13 | | | | | | |
| SE394092M | 13-2 | | | | | | |
| SE407867M | 13-35 | | | | | | |
| SE407868M | 13-6 | | | | | | |
| SE407869M | 13-7 | | | | | | |
| SE407870M | 13-17 | | | | | | |
| SK407864M | 13-36 | | | | | | |
| SK407865M | 13-37 | | | | | | |
| SK407866M | 13-10 | | | | | | |
| SP407847M | 13-1A | | | | | | |
| SP407848M | 13-1B | | | | | | |
| SP407849M | 13-15 | | | | | | |
| SP407850M | 13-16 | | | | | | |
| SP407851M | 13-30F | | | | | | |
| SP407852M | 13-30E | | | | | | |
| SP407853M | 13-30G | | | | | | |
| SP407854M | 13-30H | | | | | | |
| SP407855M | 13-30B | | | | | | |
| SP407856M | 13-30A | | | | | | |
| SP407857M | 13-30C | | | | | | |
| SP407858M | 13-30D | | | | | | |
| SP407859M | 13-38 | | | | | | |
| SZ407871M | 13-3 | | | | | | |
| SZ408739J | 13-5 | | | | | | |
| SZ733150J | 2-66 | | | | | | |
| ZG394158M | 13-18 | | | | | | |
| ZG407841J | 13-23 | | | | | | |
| ZG407842J | 13-24 | | | | | | |
| ZG733087J | 2-2 | | | | | | |
| ZG733091J | 2-6 | | | | | | |
| ZG733133J | 2-50 | | | | | | |
| ZG733134J | 2-51 | | | | | | |
| ZG733136J | 2-53 | | | | | | |

ABBREVIATIONS (AMPLIFIER)

| ABBREVIATION | EXPLANATION | ABBREVIATION | EXPLANATION |
|--------------|-----------------------------|--------------|-----------------------|
| A | Analog | MM | Moving Magnet |
| AC | Alternating Current | PCB | Printed Circuit Board |
| AMP | AMPlifier | R | Right |
| CD | Compact Disc | REG | REGulator |
| COM | COMmon | REC | RECOrd |
| D | Digital | TR | TRAnsistor |
| D/A | Digital to Analog | SW | SWitch |
| DAC | Digital to Analog Converter | V.AMP | Voltage AMPlifier |
| DAT | Digital Audio Tape recorder | V.DISC | Video DISC |
| DC | Direct Current | VR | Variable Resistance |
| GND | GrouND | VTR | Video Tape Recorder |
| L | Left | | |
| LED | Light Emitting Diode | | |

ABBREVIATIONS (CASSETTE)

| ABBREVIATION | EXPLANATION | ABBREVIATION | EXPLANATION |
|---------------|-------------------------------------|--------------|-------------------------------|
| AC | Alternating Current | MIN | MINute |
| A/D | Analog/Digital | MML | Maximum Modulation Level |
| AF | Auto Fader | MOL | Maximum Output Level |
| AMP | AMPlifier | MPX | Multi PleX |
| AR | Anti Recording | NC | Not Connected (No Connection) |
| AT BIAS | Auto Turning BIAS | NFB | Negative Feed Back |
| ATT | ATTenuator | NORM | NORMAl |
| BAL | BALance | NR | Noise Reduction |
| BEF | Band Elimination Filter | OSC | OSCillator (OSCillation) |
| BSS | Blank Search System | P | Pulse |
| CAP M | CAPstan Motor | PB | Play Back |
| CH | CHannel | QMSS | Quick Memory Search System |
| COMP | COMParator | QR | Quick Reverse |
| CONT | CONTinuanance | R CH | Right CHannel |
| CRLP | Computer Recording Level Processing | REC | RECOrd (RECOding) |
| CS | Chip Select | REV | REVerse |
| D/A | Digital/Analog | ROT | ROTation |
| DC | Direct Current | REW | REWind |
| DET | DETEctor | SEC | SECOnd |
| DISCRI | DISCRIminator | SELE | SELEctor |
| DUB | DUBbing | SENS | SENSitivity |
| EQ | EQualizer | SEPP | Single Ended Push Pull |
| FF (or F.FWD) | Fast Foward | SIG | SIGnal |
| FLD | FLuorescent Display | SPECT | SPECTrum |
| FREQ | FREQuency | STD | STANdard |
| FWD | ForWarD | SW | SWitch |
| GND | GrouND | SYSCON | SYSTEM CONTROL |
| H | High | TP | Test Point |
| HPF | High Pass Filter | TRIG | TRIGa |
| IND | INDicator | VCA | Voltage Control Attenuator |
| IPLS | Instant Program Location System | VOL | VOLUME |
| L | Low | VOLT | VOLTage |
| L CH | Left CHannel | VR | Variable Resistor |
| LED | Light Emitting Diode | X'TAL | cysTAL |
| MEMO | MEMOry | X1 | Normal speed |
| MICOM | MicroCOMputer | X2 | Dubble speed |



MULTI COMPACT DISC PLAYER

MODEL CD-650

SPECIFICATIONS

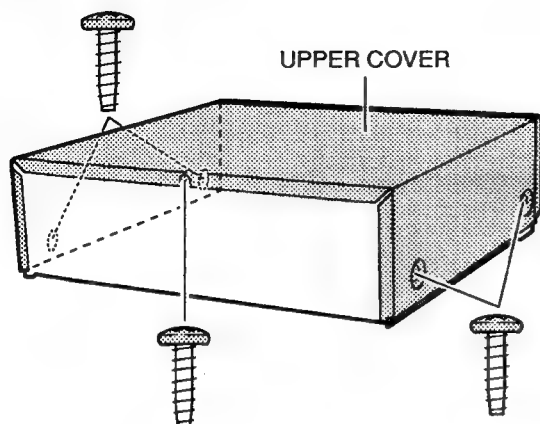
| | |
|---------------------------------|-------------------------------|
| Type | 3 discs auto changer |
| Pick up system | 3 beam laser pick-up |
| Sampling frequency | 44.1kHz |
| Error correction system | Cross interleave reed solomon |
| Number of channels | 2 channel stereo |
| Frequency response | 20 to 20,000Hz ± 1 dB |
| S/N ratio | 95dB (A-weight) |
| Wow & flutter | Less than measurable limits |
| Total harmonic distortion | 0.01% (at 1kHz) |
| Channel separation | 85dB (at 1kHz) |
| Dynamic range | 95dB |
| Dimensions | 270(W) x 88(H) x 324(D)mm |
| Weight | 2.5kg |
| Power requirement | Supplied from AX-550/650 |
| Power consumption | 10W |

* For improvement purposes, specifications and design are subject to change without notice.

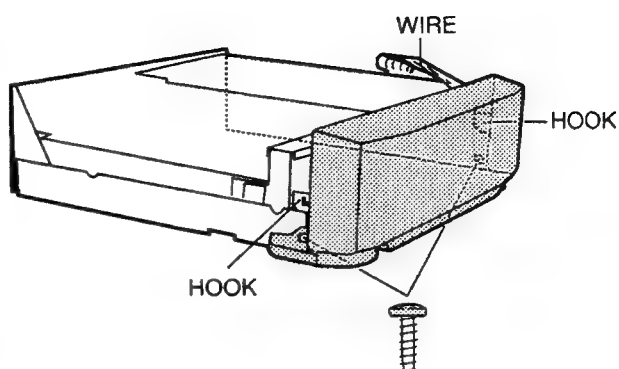
I.DISASSEMBLY

In case of trouble, etc., necessitating dismantling, please dismantle in the order shown in the illustrations.
Reassemble in the reverse order.

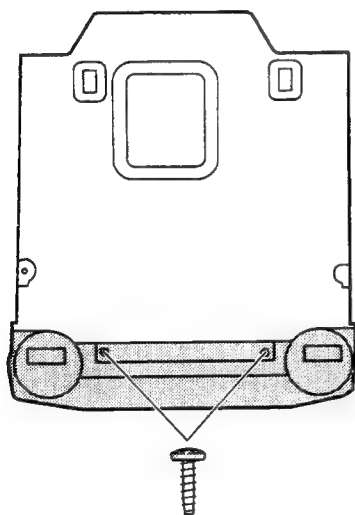
1. Removal of the UPPER COVER



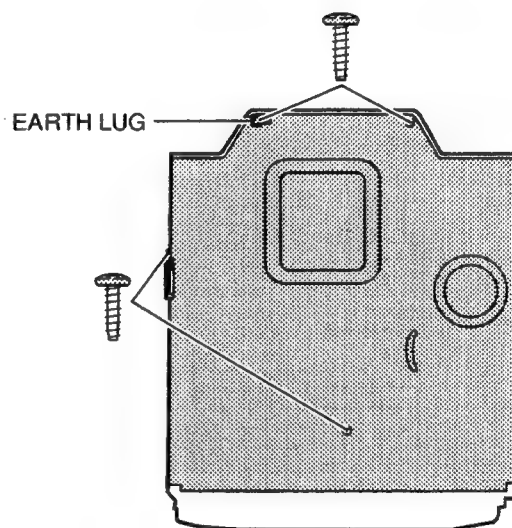
3



2. Removal of the FRONT PANEL



4. Removal of the BOTTOM COVER



II. PRINCIPAL PARTS LOCATION

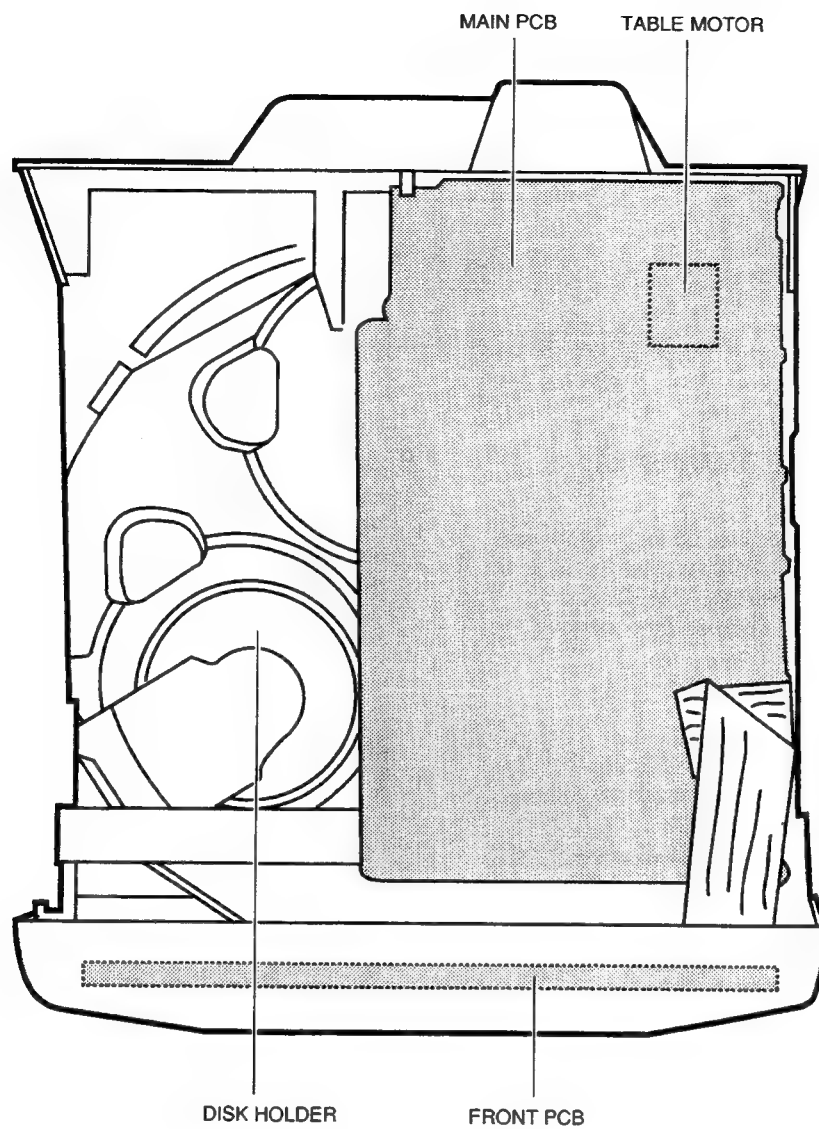


Fig.2-1 Top view

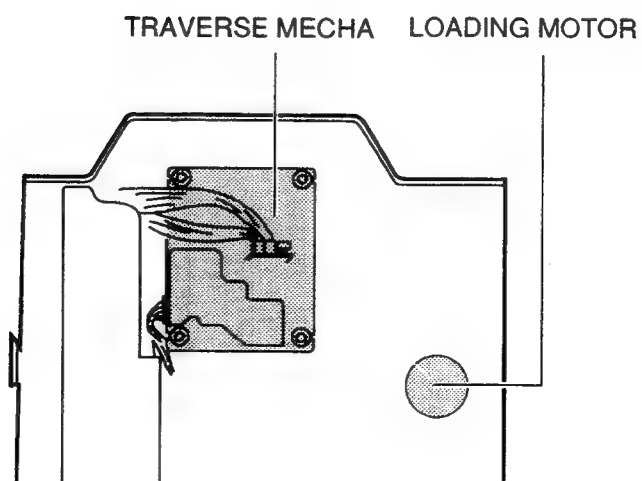
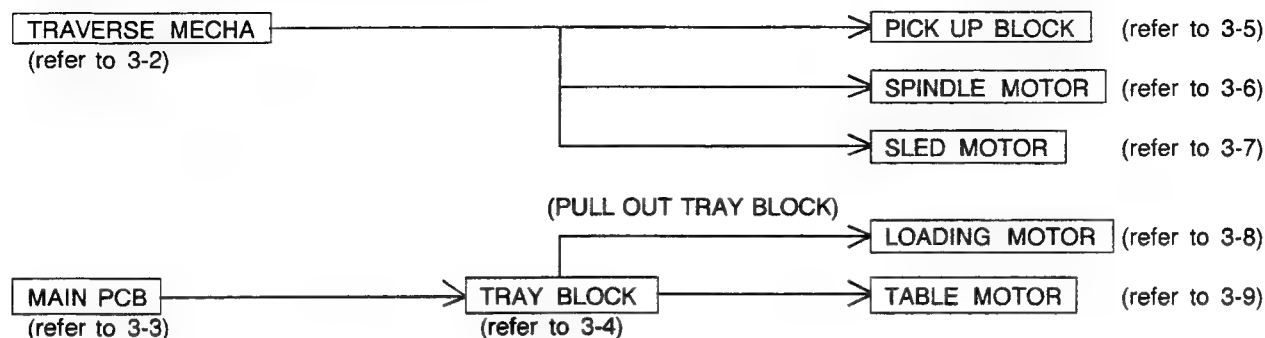


Fig.2-2 Bottom view

III.REPLACEMENT OF THE PRINCIPAL COMPONENTS

3-1.DISMANTLING PROCEDURE OF THE COMPONENTS

When replacement of the mechanical parts is necessary, replace them using the following procedure.



3-2.REMOVAL OF THE TRAVERSE MECHA.

- 1) Disconnect the three connectors carefully (two connectors are on the PICK UP PCB and the other is on the MOTOR PCB of the TRAVERSE MECHA.).
- 2) Remove the four retaining screws, then remove the PICK UP UNIT.

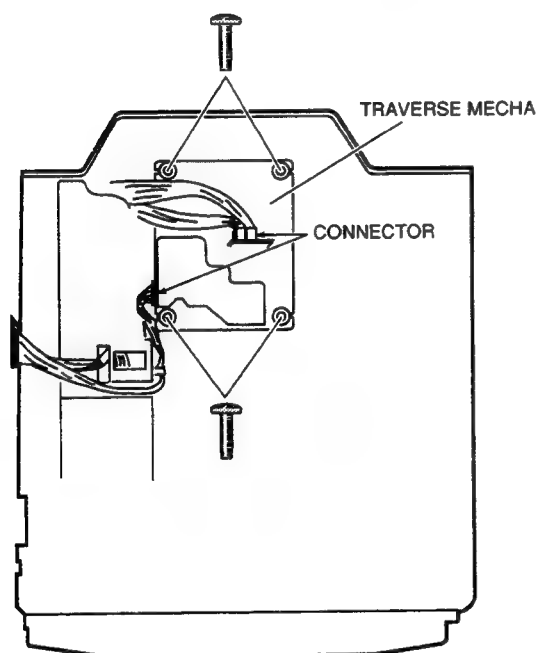


Fig.3-1

3-3.REMOVAL OF THE MAIN PCB

- 1) Disconnect the P4, P5 and P6 connectors on the MAIN PCB.
- 2) Remove the four retaining screws of the MAIN PCB, then remove the MAIN PCB.

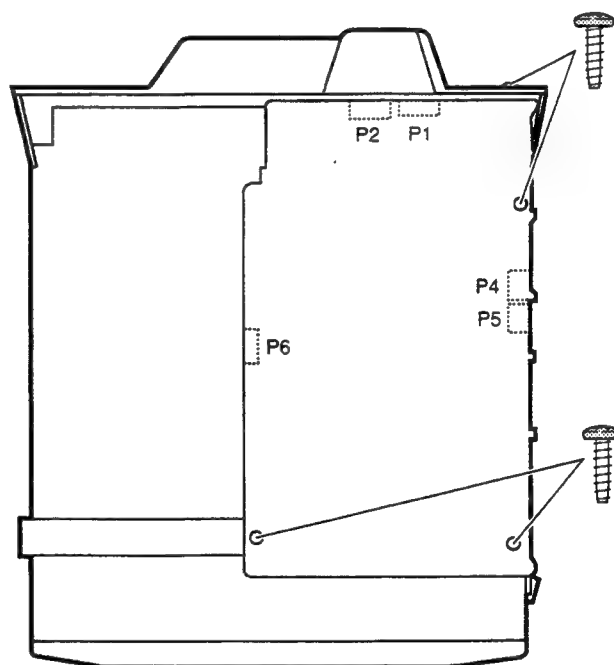


Fig.3-2

3-4.REMOVAL OF THE TRAY BLOCK

- 1) Remove the MAIN PCB.
- 2) Slide the GEAR HOLDER RETAINING SCREW in the direction of the arrow and pull out the TRAY BLOCK slowly.
- 3) Remove the MAIN PCB HOLDER RETAINING SCREWS then remove the MAIN PCB HOLDER and the BRACKETS on both side.
- 4) Remove the TRAY BLOCK.

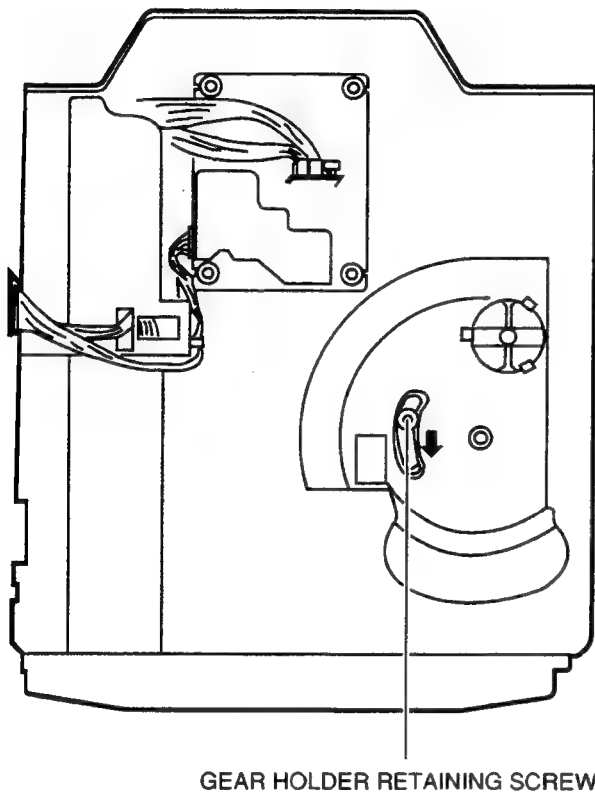


Fig.3-3

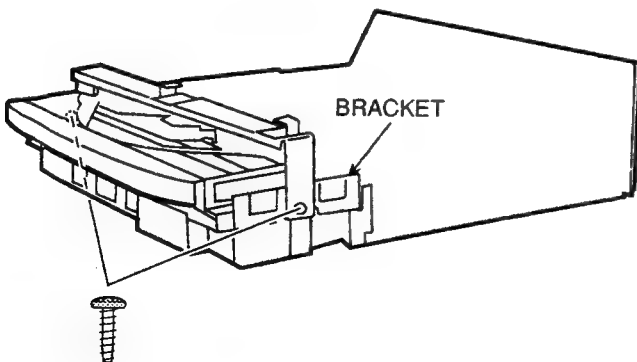


Fig.3-4

3-5.REPLACEMENT OF THE PICK UP BLOCK

- 1) Remove the TRAVERSE MECHA.
- 2) Push the Ⓐ stopper in the right direction and pull the SLIDE SHAFT in the forward direction to remove the PICK UP BLOCK, then replace the PICK UP BLOCK.
- 3) Reassemble in the reverse order.

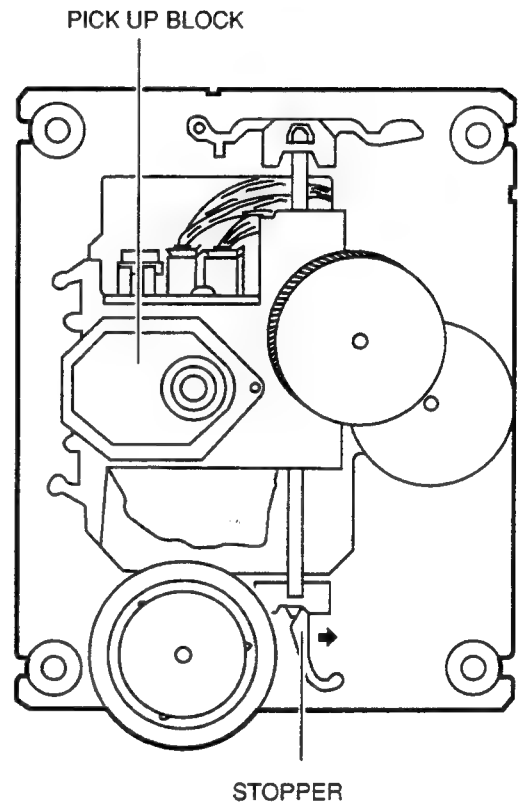


Fig.3-5

3-6.REPLACEMENT OF THE SPINDLE MOTOR

Replacement of the SPINDLE MOTOR itself is not recommended, because the adjustment of the TURN TABLE height is quite critical and necessitating the use of a special jig.

3-7.REPLACEMENT OF THE SLED MOTOR

- 1) Remove the TRAVERSE MECHA.
- 2) Remove the MOTOR PCB.
- 3) Remove the SLED MOTOR RETAINING ⑧ SCREWS, then replace the SLED MOTOR.
- 4) Reassemble in the reverse order.

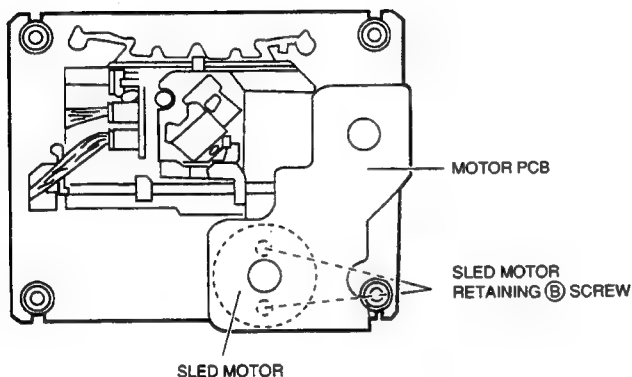


Fig.3-6

3-8.REPLACEMENT OF THE LOADING MOTOR

- 1) Push the GEAR HOLDER RETAINING SCREW in the direction of the arrow, then pull out the TRAY BLOCK.
- 2) Remove the LOADING BELT and the LOADING MOTOR RETAINING SCREWS.
- 3) Unsolder the lead wires of the LOADING MOTOR with a soldering iron.
- 4) While opening the LOADING MOTOR'S THREE RETAINING HOOKS, remove and replace the LOADING MOTOR.
- 5) Reassemble in the reverse order.

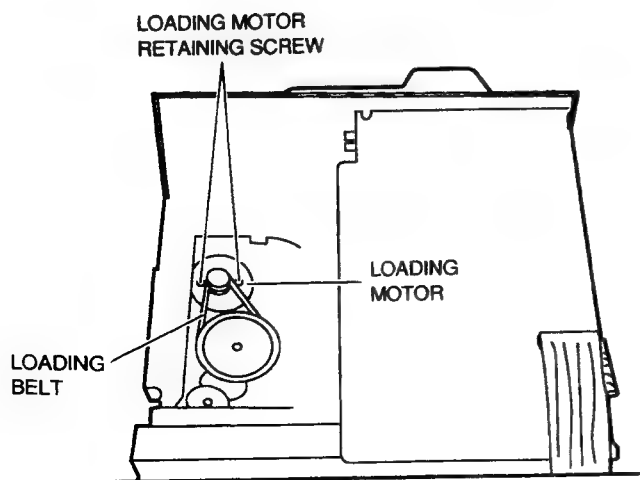


Fig.3-7

3-9.REPLACEMENT OF THE TABLE MOTOR

- 1) Remove the MAIN PCB.
- 2) Remove the TRAY BLOCK.
- 3) Remove the DISC HOLDER RETAINING SCREW then remove DISC HOLDER.
- 4) Remove the GEAR COVER then remove the TABLE GEAR (B) and GEAR WORM WHEEL TABLE.
- 5) Unsolder the lead wires of the TABLE MOTOR.
- 6) Remove the TABLE MOTOR while opening the TABLE MOTOR RETAINING HOOK, then replace the TABLE MOTOR.
- 7) Reassemble in the reverse order.

NOTE: 1) When reassembling, make sure that the TABLE GEAR (A)'s hole is aligned with the reference hole on the LOADING TRAY.

2) When installing the DISC HOLDER on the LOADING TRAY, make sure to place the DISC HOLDER so that the label "3" is facing upward (label "2" faces right and label "1" faces left accordingly).

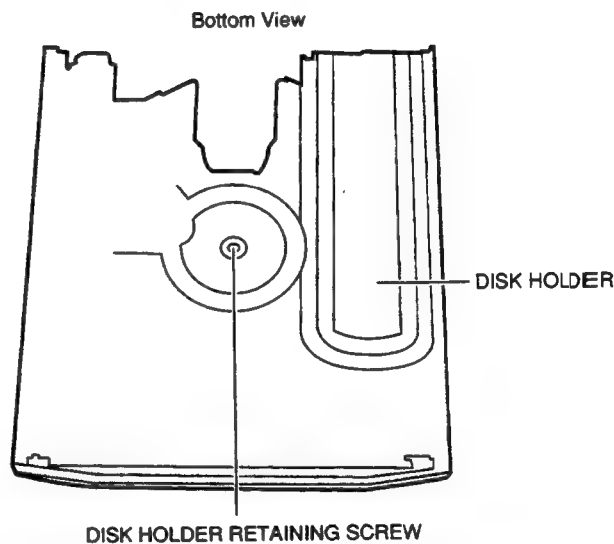


Fig.3-8

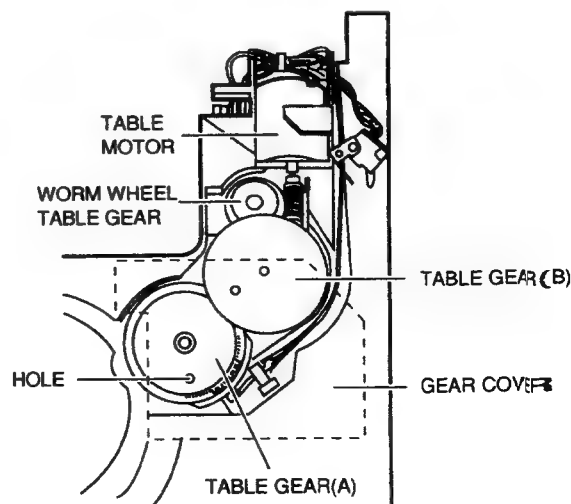


Fig.3-9

IV. ELECTRICAL ADJUSTMENT

Before making adjustments 1 - 5, load a test disc as follows.

After first setting the unit to the test mode 1, press the ►/▲ button to open the disc tray and place a SONY TYPE 3 test disc on the DISC 1 holder. Press the ►/▲ button again to close the tray. Adjustments can now be made.

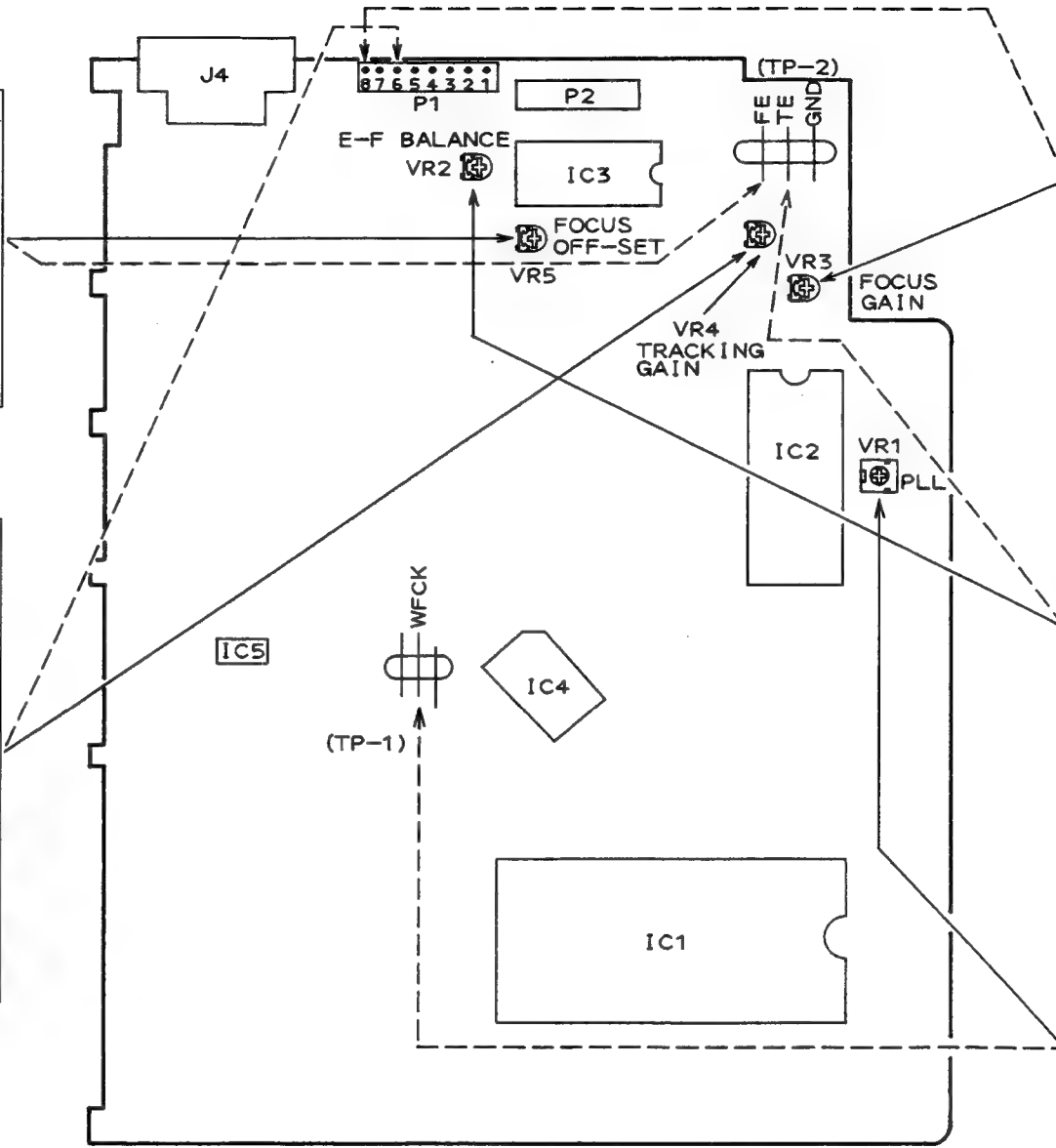
| STEP | ADJUSTMENT |
|------|----------------------------------|
| 1. | TEST DISC |
| 2. | MODE or TEST mode |
| 3. | TEST POINT and ADJUSTMENT parts. |
| 4. | REMARK (●), RESULT (*) |

Test point

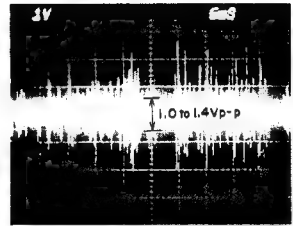
ADJ.part

| 5 FOCUS OFF-SET |
|---|
| 1. Test disc SONY TYPE 3 (AT-711881) |
| 2. Test mode 2 and 1 |
| 3. FE (TP-2) / VR 5 |
| 4. ●Connect a digital DC voltmeter to the TP 2 (FE) and check the voltage A in the test mode 2, then press STOP button and adjust the voltage B so that the reading on the digital DC voltmeter is the same as voltage A. *A=B |

| 4 TRACKING SERVO GAIN |
|--|
| 1. Test disc SONY TYPE 3 (AT-711881) |
| 2. Test mode 5 |
| 3. P1 ⑥ pin / VR 4 |
| 4. ●Connect an oscilloscope to the P1 connector ⑥ pin. *500 to 800mVp-p |



| 3 FOCUS SERVO GAIN |
|--|
| 1. Test disc SONY TYPE 3 (AT-711881) |
| 2. Test mode 5 |
| 3. P1 ⑧ pin / VR 3 |
| 4. ●Connect an oscilloscope to the P1 connector ⑧ pin *1.0 to 1.4Vp-p |



| 2 E-F BALANCE |
|--|
| 1. Test disc SONY TYPE 3 (AT-711881) |
| 2. Test mode 3 |
| 3. TE (TP 2) / VR 2 |
| 4. ●Connect an oscilloscope to the TP 2 (TE) *A=B |



| 1 VCO |
|---|
| 1. — |
| 2. Test mode 1 |
| 3. WECK (TP-1) / VR 1 |
| 4. ●Connect a frequency counter to the TP 1 (WECK). *7,350 ±10Hz |

| TEST MODE | HOW TO SET EACH MODE | FUNCTION | LED 1 | LED 2 | LED 3 | MUSIC CALENDAR |
|-----------|--|---|-------|-------|-------|----------------|
| 1 | While pressing the ■ and ►/▲ buttons, insert the power cord. | ●Indicates that unit is set into the TEST mode. | ON | OFF | OFF | 1 |
| 2 | Press the ▲ OPEN/CLOSE DISC 1 button | ●FOCUS SERVO is on. | OFF | ON | OFF | 2 |
| 3 | Press the ▲ OPEN/CLOSE DISC 2 button | ●CLV-S SERVO is on. | ON | ON | OFF | 3 |
| 4 | Press the ▲ OPEN/CLOSE DISC 3 button | ●TRACKING SERVO is on. | OFF | OFF | ON | 4 |
| 5 | Press the PLAY ► DISC 1 button | ●CLV-A and SLED SERVO are on. | ON | OFF | ON | 5 |
| 6 | Press the PLAY ► DISC 2 button | ●ANTI SHOCK is on | OFF | ON | ON | 6 |

MAIN PCB
FRONT

- The disc tray can be opened or closed by pressing the ►/■ button (during any mode). After opening the tray, closing it will move the pick up to the inward position and return the unit to the TEST MODE 1.
- Pressing the ■ button will return the unit to the TEST MODE 1 regardless of the test mode presently engaged. However, the pick up will not be moved.
- Test modes can be selected directly.

V. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

| Ref. No. | Part No. | Description |
|----------|---------------|--------------------|
| 1 | BH-T2023A320A | HEAD BASE BLOCK |
| 2 | HP-H2206A010A | HEAD R/P PR4-8FU C |
| 3 | ZS-477876 | PAN20X03STL CMT |
| 4 | ZS-536488 | BID20X08STL CMT |
| 5 | ZG-402895 | SP CS ANGLE ADJUST |

SP (Service Parts) Classification

This number corresponds with the individual parts index number in that figure.

b) PC Board

6. MAIN PC BOARD

| Ref. No. | Part No. | Description |
|----------|-----------|------------------------------|
| IC1 | EI-324536 | IC HD14049BP |
| IC2 | EI-336801 | IC MB8841-564M |
| C1A | EC-338399 | C MMY V 223M 250AC [U,E,B,S] |
| C1B | EC-350949 | C MMY V 223M 250DC [J] |
| C1C | EC-338397 | C MMY V 223M 125AC [C,A] |
| X1 | EI-318384 | OSC X'TAL NC-18C |

Symbols for primary destination

[A] : AAL (U.S.A) [S] : SAA (Australia)

[B] : BEAB (England) [U] : U/T (Universal Area)

[C] : CSA (Canada)

[E] : CEE (Europe) [V] : VDE (Germany)

[J] : JPN (Japan) [Y] : Custom Version

SP (Service Parts) Classification

These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

⚠ (*) INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS.

AVERTISSEMENT

⚠ (*) IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

1. RECOMMENDED SPARE PARTS

We suggest you to stock the following Recommended Spare Part items listed below since they can cover most of the routine service.

| Ref.No. | Part No. | Description |
|---------|-------------|--------------------------------|
| 1 | *BB-408757N | MECHA TRAVERSE KSM-2101ABM |
| 2 | BM-733203J | MOTOR GEAR ASSY (MB) |
| 3 | BM-374198 | MOTOR RF-370CA-15370 |
| 4 | BM-408752M | MOTOR RF-500TB-14415 |
| 5 | *BO-394728J | PICK UP KSS-210A |
| 6 | ED-408651J | D LED SEL2913K ORANGE |
| 7 | ED-307572 | D SILICON H 1SS131 |
| 8 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| 9 | ED-408721J | D ZENER H HZS2B3 |
| 10 | ED-408720J | D ZENER H HZS3C1 |
| 11 | ED-408719J | D ZENER H HZS4C2 |
| 12 | ED-403743J | D ZENER H HZS6B3 |
| 13 | *ED-400171J | D ZENER H HZS6C2L |
| 14 | EH-408654J | COMP R RGLE10T 223J |
| 15 | EH-404307J | COMP R RGLE13X 223J |
| 16 | EH-408656J | COMP R RGLE6X 472J |
| 17 | EI-330352 | IC BA6109 |
| 18 | EI-389264J | IC BA6209N |
| 19 | EI-390112J | IC CXA1081S |
| 20 | EI-390120J | IC CXA1082BS |
| 21 | EI-403497J | IC CXD1167Q |
| 22 | EI-387938J | IC HD74LS05P |
| 23 | EI-408657J1 | IC M38002M4-126SP MXA1CD2 |
| 24 | EI-393325J | IC M5218AP |
| 25 | EI-213390 | IC NJM4558D |
| 26 | EI-408658J | IC PCM67U |
| 27 | EI-390149J | OSC CE CST4.23MGW 4.230MHZ |
| 28 | EI-381139J | OSC X'TAL HC-49/U 16934.400KHZ |
| 29 | ES-733205J | SW LEAF |
| 30 | ES-408754M | SW LEAF LSA-1119H |
| 31 | ES-408755M | SW LEAF LSA-2127E |
| 32 | ES-394427J | SW TACT SOR-133HS T05 |
| 33 | ET-369248 | TR DTA114YS |
| 34 | ET-360399 | TR DTC114TS |
| 35 | ET-354365 | TR DTC114YS |
| 36 | ET-354371 | TR DTC124ES |
| 37 | ET-354364 | TR DTC143TS |
| 38 | ET-353899 | TR 2SA1317 S,T,U |
| 39 | ET-394919J | TR 2SB1329 Q,R T05 |
| 40 | *ET-388338J | TR 2SB1425 S,E |
| 41 | *ET-397160J | TR 2SC3330 R,S,T,U,V |
| 42 | ET-379239 | TR 2SD1380 Q,R |
| 43 | *ET-396072J | TR 2SD2159 V,W |
| 44 | MA-733202J | TURNTABLE CHASSIS ASSY (MB) |

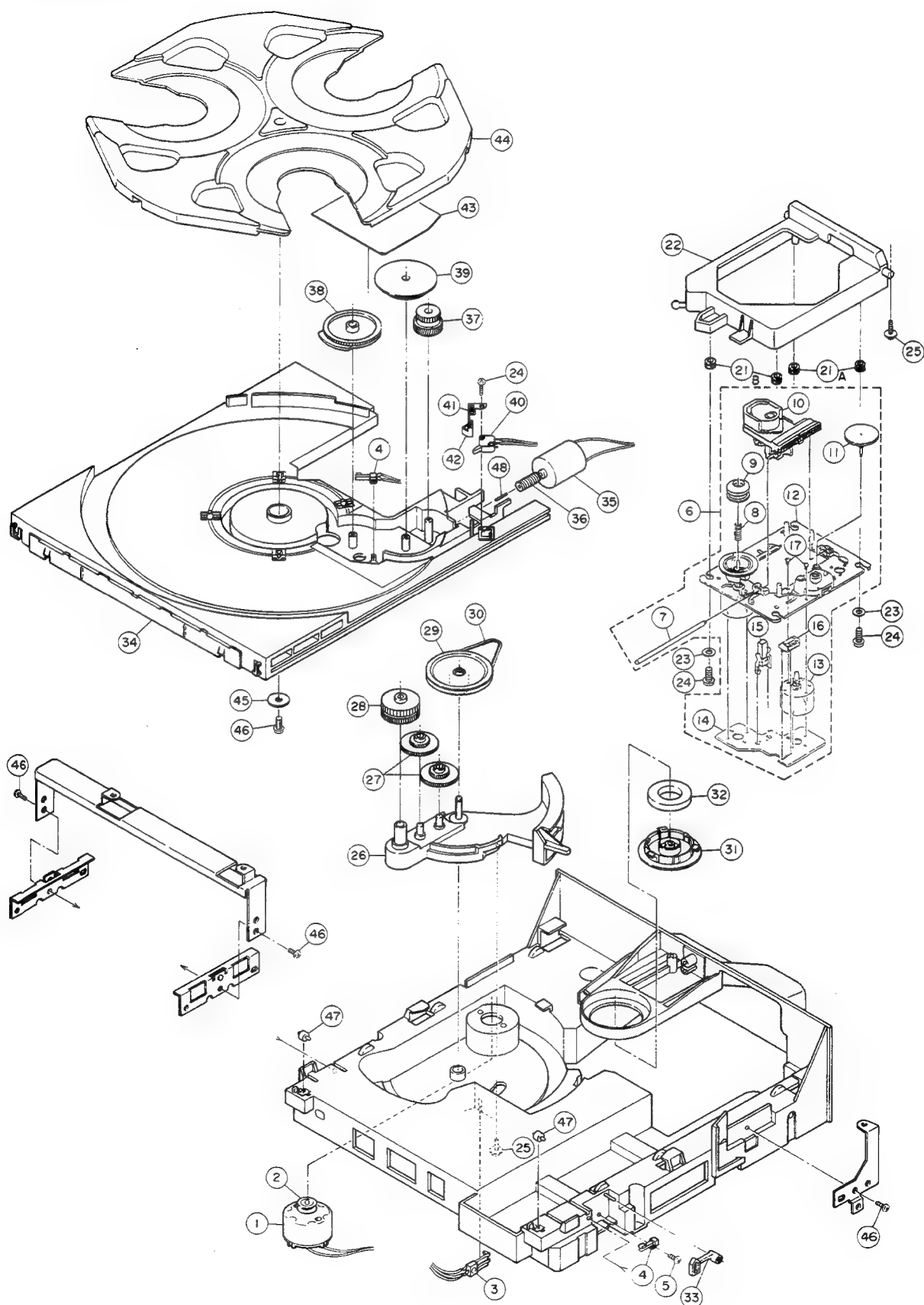
2. CD MECHANISM

| Ref.No. | Part No. | Description |
|---------|-------------|------------------------------|
| 1 | BM-408752M | MOTOR RF-500TB-14415 |
| 2 | MR-407764M | PULLEY (SG) |
| 3 | ES-408755M | SW LEAF LSA-2127E |
| 4 | ES-408754M | SW LEAF LSA-1119H |
| 5 | ZS-343082 | PT BR26X08STL CMT |
| 6 | *BB-408757N | MECHA TRAVERSE KSM-2101ABM |
| 7 | MS-733198J | SLIDE SHAFT |
| 8 | ZG-733199J | SP COMPRESSION |
| 9 | MZ-733200J | CENTER RING (LO) |
| 10 | *BO-394728J | PICK UP KSS-210A |
| 11 | MZ-733201J | GEAR (A) |
| 12 | MA-733202J | TURNTABLE CHASSIS ASSY (MB) |
| 13 | BM-733203J | MOTOR GEAR ASSY (MB) |
| 14 | EA-733204J | MOTOR P.C BOARD (6P) |
| 15 | ES-733205J | SW LEAF |
| 16 | EJ-733206J | CONNECTOR 6P |
| 17 | ZS-477876 | PAN20X03STL CMT |
| 18 | EW-408749M | WIRE ASSY YMC-02 PU1 8P |
| 19 | EW-408750M | WIRE ASSY YMC-02 PU2 8P |
| 20 | EW-408751M | WIRE ASSY YMC-02 TRAVERSE 6P |
| 21A | MB-407746M | INSULATOR (SG) |
| 21B | MB-411992M | INSULATOR (B) (SG) |
| 22 | MZ-407745M | HOLDER TRAVERSE (SG) |
| 23 | ZW-409219M | PW23X100X100STL BZN (SG) |
| 24 | ZS-390395J | BT BID20X10STL BZN |
| 25 | ZS-407886M | BT PAN30X08STL BZN C100 (SG) |
| 26 | BL-409250M | SG HOLDER GEAR PART |
| 27 | MZ-407734J1 | GEAR LOADING (B) |
| 28 | MZ-407733M | GEAR LOADING (A) (SG) |
| 29 | MZ-407763J1 | PULLEY GEAR |
| 30 | MB-407767M | BELT LOADING (SG) |
| 31 | MZ-410907J | CLAMPER (B) |
| 32 | MZ-408753J | MAGNET FM30X17X5.2 2P |
| 33 | ML-407765J | LEVER SW LOADING |
| 34 | SC-407748M | TRAY LOADING (SG) |
| 35 | BM-374198 | MOTOR RF-370CA-15370 |
| 36 | MZ-407740J | WORM TABLE |
| 37 | MZ-407739M | GEAR WORM WHEEL TABLE (SG) |
| 38 | MZ-407737M | GEAR TABLE (A) (SG) |
| 39 | MZ-407738M | GEAR TABLE (B) (SG) |
| 40 | ES-408758M | SW LEVER SSCTL-S-R |
| 41 | ZG-407741M | SP PLATE HOLDER DISK (SG) |
| 42 | ML-407742M | LEVER SW (SG) |
| 43 | SZ-407750M | COVER GEAR (SG) |
| 44 | MZ-407749M | HOLDER DISK (SG) |
| 45 | ZW-396336M | PW30X150X080STL CMT (SG) |
| 46 | ZS-331182 | BT BID30X08STL BNI |
| 47 | MR-407755M | ROLLER |
| 48 | MS-411215J | SHAFT WORM |

NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

CD MECHANISM



3. P.C BOARD BLOCK

| Ref.No. | Part No. | Description |
|---------|---------------|----------------------------|
| 1 | BA-P2069T030A | ML PC (#) CD BLK CD-650/ML |

PC (#) CD BLK CONSISTS OF FOLLOWING P.C BOARD.

- MAIN P.C BOARD
- FRONT P.C BOARD

4. MAIN P.C BOARD

| Ref.No. | Part No. | Description |
|---------|-------------|------------------------------|
| D1 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D2 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D3 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D4 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D5 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D6 | *ED-511907 | D SILICON 1N4002 100/1.0A |
| D7 | *ED-400171J | D ZENER H HZS6C2L |
| D9 | *ED-400171J | D ZENER H HZS6C2L |
| D11 | ED-307572 | D SILICON H 1SS131 |
| D12 | ED-307572 | D SILICON H 1SS131 |
| D13 | ED-307572 | D SILICON H 1SS131 |
| D14 | ED-403743J | D ZENER H HZS6B3 |
| D15 | ED-400171J | D ZENER H HZS6C2L |
| D16 | ED-408721J | D ZENER H HZS2B3 |
| D17 | ED-408720J | D ZENER H HZS3C1 |
| D18 | ED-408719J | D ZENER H HZS4C2 |
| D19 | ED-307572 | D SILICON H 1SS131 |
| D20 | ED-307572 | D SILICON H 1SS131 |
| IB1 | EH-404307J | COMP R RGL13X 223J |
| IB2 | EH-408654J | COMP R RGL10T 223J |
| IB3 | EH-408656J | COMP R RGL6X 472J |
| IC1 | EI-408657J1 | IC M38002M4-126SP MXA1CD2 |
| IC2 | EI-390120J | IC CXA1082BS |
| IC3 | EI-390112J | IC CXA1081S |
| IC4 | EI-403497J | IC CXD1167Q |
| IC5 | EI-408658J | IC PCM67U |
| IC6 | EI-393325J | IC M5218AP |
| IC7 | EI-213390 | IC NJM4558D |
| IC8 | EI-387938J | IC HD74LS05P |
| IC9 | EI-389264J | IC BA6209N |
| IC10 | EI-330352 | IC BA6109 |
| J4 | EJ-408660J | SOCKET CFG1111-0161 BLUE 11P |
| R50 | *ER-394882J | R OMF V T05 FS 1/2W 1R2J |
| R53 | *ER-394882J | R OMF V T05 FS 1/2W 1R2J |
| TR1 | *ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR2 | *ET-396072J | TR 2SD2159 V,W |
| TR3 | *ET-396072J | TR 2SD2159 V,W |
| TR4 | ET-396072J | TR 2SD2159 V,W |
| TR5 | ET-353899 | TR 2SA1317 S,T,U |
| TR6 | *ET-388338J | TR 2SB1425 S,E |
| TR7 | ET-353899 | TR 2SA1317 S,T,U |
| TR8 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR9 | ET-360399 | TR DTC114TS |
| TR10 | ET-354365 | TR DTC114YS |
| TR11 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR12 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR13 | ET-397160J | TR 2SC3330 R,S,T,U,V |
| TR14 | ET-360399 | TR DTC114TS |
| TR15 | ET-360399 | TR DTC114TS |
| TR16 | ET-354371 | TR DTC124ES |
| TR17 | ET-354364 | TR DTC143TS |
| TR18 | ET-354364 | TR DTC143TS |
| TR19 | ET-369248 | TR DTA114YS |
| TR21 | ET-379239 | TR 2SD1380 Q,R |
| TR22 | ET-388338J | TR 2SB1425 S,E |
| TR23 | ET-379239 | TR 2SD1380 Q,R |
| TR24 | ET-394919J | TR 2SB1329 Q,R T05 |
| TR25 | ET-396072J | TR 2SD2159 V,W |
| TR26 | ET-388338J | TR 2SB1425 S,E |
| TR27 | ET-396072J | TR 2SD2159 V,W |
| TR28 | ET-388338J | TR 2SB1425 S,E |
| TR29 | ET-354365 | TR DTC114YS |
| TR30 | ET-354365 | TR DTC114YS |
| TR31 | ET-354365 | TR DTC114YS |
| VR1 | EV-404260J | R S-FIX H RH0681C 0.30W 102 |
| VR2 | EV-358829 | R S-FIX H RH0615C 0.10W 223 |
| VR3 | EV-358829 | R S-FIX H RH0615C 0.10W 223 |

| Ref.No. | Part No. | Description |
|---------|------------|-------------------------------|
| VR4 | EV-358829 | R S-FIX H RH0615C 0.10W 223 |
| VR5 | EV-356576 | R S-FIX H RH0615C 0.10W 472 |
| X1 | EI-381139J | OSC XTAL HC-49/U 16934.400KHZ |
| X2 | EI-390149J | OSC CE CST4.23MGW 4.230MHZ |

5. FRONT P.C BOARD

| Ref.No. | Part No. | Description |
|---------|------------|-----------------------|
| D201 | ED-408651J | D LED SEL2913K ORANGE |
| D202 | ED-408651J | D LED SEL2913K ORANGE |
| D203 | ED-408651J | D LED SEL2913K ORANGE |
| TS201 | ES-394427J | SW TACT SOR-133HS T05 |
| TS202 | ES-394427J | SW TACT SOR-133HS T05 |
| TS203 | ES-394427J | SW TACT SOR-133HS T05 |
| TS204 | ES-394427J | SW TACT SOR-133HS T05 |
| TS205 | ES-394427J | SW TACT SOR-133HS T05 |
| TS206 | ES-394427J | SW TACT SOR-133HS T05 |
| TS207 | ES-394427J | SW TACT SOR-133HS T05 |
| TS208 | ES-394427J | SW TACT SOR-133HS T05 |
| TS209 | ES-394427J | SW TACT SOR-133HS T05 |
| TS210 | ES-394427J | SW TACT SOR-133HS T05 |

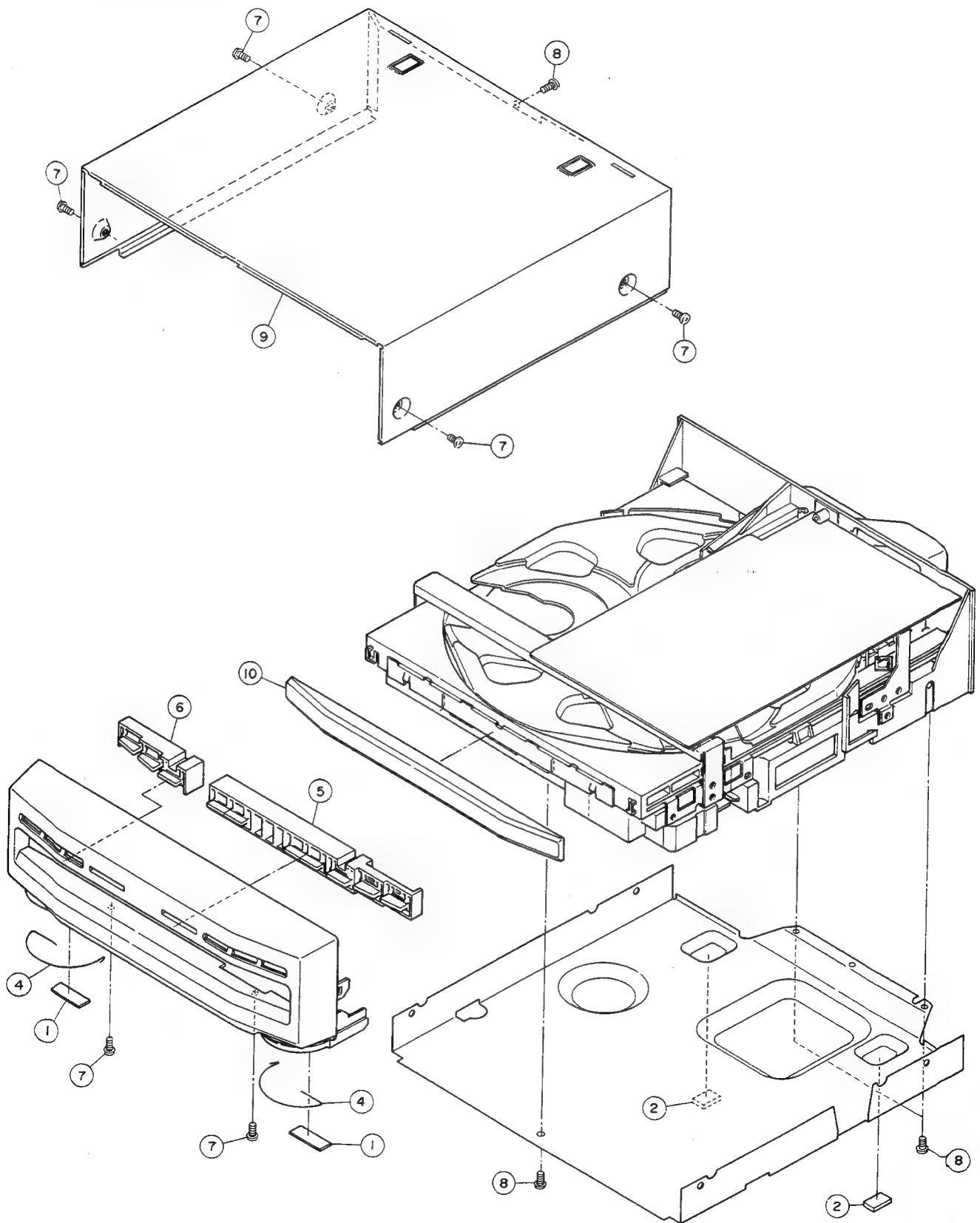
6. FINAL ASSEMBLY

| Ref.No. | Part No. | Description |
|---------|------------|-----------------------------|
| 1 | SA-394136M | CUSHION FOOT (SG) |
| 2 | SA-407840M | CUSHION FOOT REAR (SG) |
| 3 | SP-408018M | PANEL FRONT (SG) |
| 4 | SZ-407871M | RING FOOT (A) (SG) |
| 5 | SB-408020M | BUTTON OP (SG) |
| 6 | SB-408021M | BUTTON OPEN (SG) |
| 7 | ZS-331182 | BT BID30X08STL BNI |
| 8 | ZS-366385 | T2BR30X08STL BNI PROJECTION |
| 9 | SP-408022M | COVER UPPER (SG) |
| 10 | SP-408023M | COVER TRAY (SG) |

NOTE:

Parts will not be supplied if they are not listed in the parts list, even if they appear on the assembling illustrations with reference No.

FINAL ASSEMBLY



INDEX

| Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. | Part No. | Ref. No. |
|--------------|----------|------------|----------|-----------|----------|----------|----------|
| BAP2069T030A | 3-1 | ET354371 | 4-TR16 | ZW396336M | 2-45 | | |
| BB408757N | 2-6 | ET360399 | 4-TR9 | ZW409219M | 2-23 | | |
| BL409250M | 2-26 | ET360399 | 4-TR14 | | | | |
| BM374198 | 2-35 | ET360399 | 4-TR15 | | | | |
| BM408752M | 2-1 | ET369248 | 4-TR19 | | | | |
| BM733203J | 2-13 | ET379239 | 4-TR21 | | | | |
| BO394728J | 2-10 | ET379239 | 4-TR23 | | | | |
| EA733204J | 2-14 | ET388338J | 4-TR6 | | | | |
| ED307572 | 4-D11 | ET388338J | 4-TR22 | | | | |
| ED307572 | 4-D12 | ET388338J | 4-TR26 | | | | |
| ED307572 | 4-D13 | ET388338J | 4-TR28 | | | | |
| ED307572 | 4-D19 | ET394919J | 4-TR24 | | | | |
| ED307572 | 4-D20 | ET396072J | 4-TR2 | | | | |
| ED400171J | 4-D7 | ET396072J | 4-TR3 | | | | |
| ED400171J | 4-D9 | ET396072J | 4-TR4 | | | | |
| ED400171J | 4-D15 | ET396072J | 4-TR25 | | | | |
| ED403743J | 4-D14 | ET396072J | 4-TR27 | | | | |
| ED408651J | 5-D201 | ET397160J | 4-TR1 | | | | |
| ED408651J | 5-D202 | ET397160J | 4-TR8 | | | | |
| ED408651J | 5-D203 | ET397160J | 4-TR11 | | | | |
| ED408719J | 4-D18 | ET397160J | 4-TR12 | | | | |
| ED408720J | 4-D17 | ET397160J | 4-TR13 | | | | |
| ED408721J | 4-D16 | EV356576 | 4-VR5 | | | | |
| ED511907 | 4-D1 | EV358829 | 4-VR2 | | | | |
| ED511907 | 4-D2 | EV358829 | 4-VR3 | | | | |
| ED511907 | 4-D3 | EV358829 | 4-VR4 | | | | |
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ABBREVIATIONS (COMPACT DISC)

| ABBREVIATION | EXPLANATION | ABBREVIATION | EXPLANATION |
|---|--|---|--|
| A-D | Analog to Digital (Convertor) | Mb | Mega Bits |
| ADC | Analog to Digital (Convertor) | MDA | Mortor Drive Amplifier |
| BCD | Binary Code Decimal | MFM | Modified Frequency Modulation |
| BPI | Bits per Inch | MM | Mono-stable Multivibrator |
| CD | Compact Disc | M ² FM | Modified Modified Frequency Modulation |
| CIRC | Cross Interleaving & Reed Solomon Coding | MOD2 | Modulo 2 (Addition) |
| CLV | Constant Linear Velocity | MP | Microprocessor |
| CP | Clock Pulses | MSB | Most Significant Bit |
| CRCC | Cyclic Redundancy Check Codes | NA | Numerical Aperture |
| D Level | Decision Level | NRZ | Non Return to Zero |
| D-A | Digital to Analog (Convertor) | NRZ-1 | Non Return to Zero Inverted |
| DAC | Digital to Analog (Convertor) | P | Parity Data |
| DAD | Digital Audio Disc | PAM | Pulse Amplitude Modulation |
| DEM | Dynamic Element Matching | PCM | Pulse Code Modulation |
| DPD | Differential Phase Detection | PD | Phase Detector |
| DSV | Digital Sum Value | PE | Phase Encode |
| EFM | Eight to fourteen Modulation | PLL | Phase Locked Loop |
| EX-OR | EXclusive OR | PNM | Pulse Number Modulation |
| FCI | Flux Changes per Inch | PPM | Pulse Phase Modulation |
| FIR | Finite Impulse Response | PWM | Pulse Width Modulation |
| FP | Front Pulse | Q | Parity Data |
| FPG | Front Pulse Gate | R, R ₁ , R ₂ , etc. | Data for Right Channel |
| f | Frequency of Sampling | RAM | Random Access Memory |
| GF | Galois Field | RPG | Rear Pulse Gate |
| H & V (Parity) | Horizontal & Vertical | SCOOP | Self Coupled Optical Pick-up |
| IIR | Infinite Impulse Response | S & H | Sample & Hold |
| kb | Kilo Bits | S/N | Signal to Noise Ratio |
| L, L ₁ , L ₂ , etc. | Data for Left Channel | SSG | Standard Signal Generator |
| LPF | Low Pass Filter | SYSCON | SYSTEM CONTROL |
| LSB | Least Significant Bit | | |

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AKAI

MODEL MX-550
(TP-550, AX-550, CD-650)

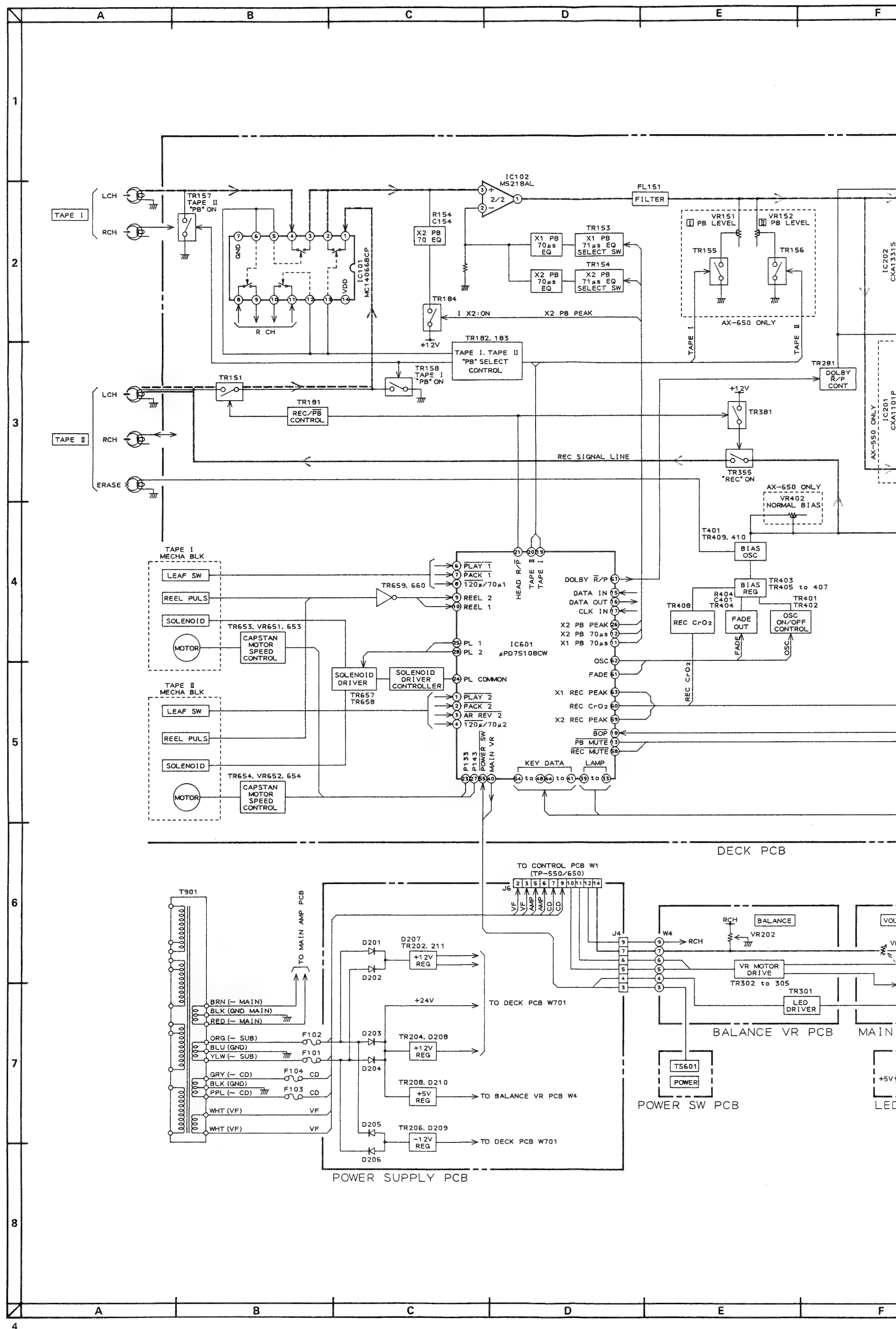
MODEL MX-650
(TP-650, AX-650, CD-650)

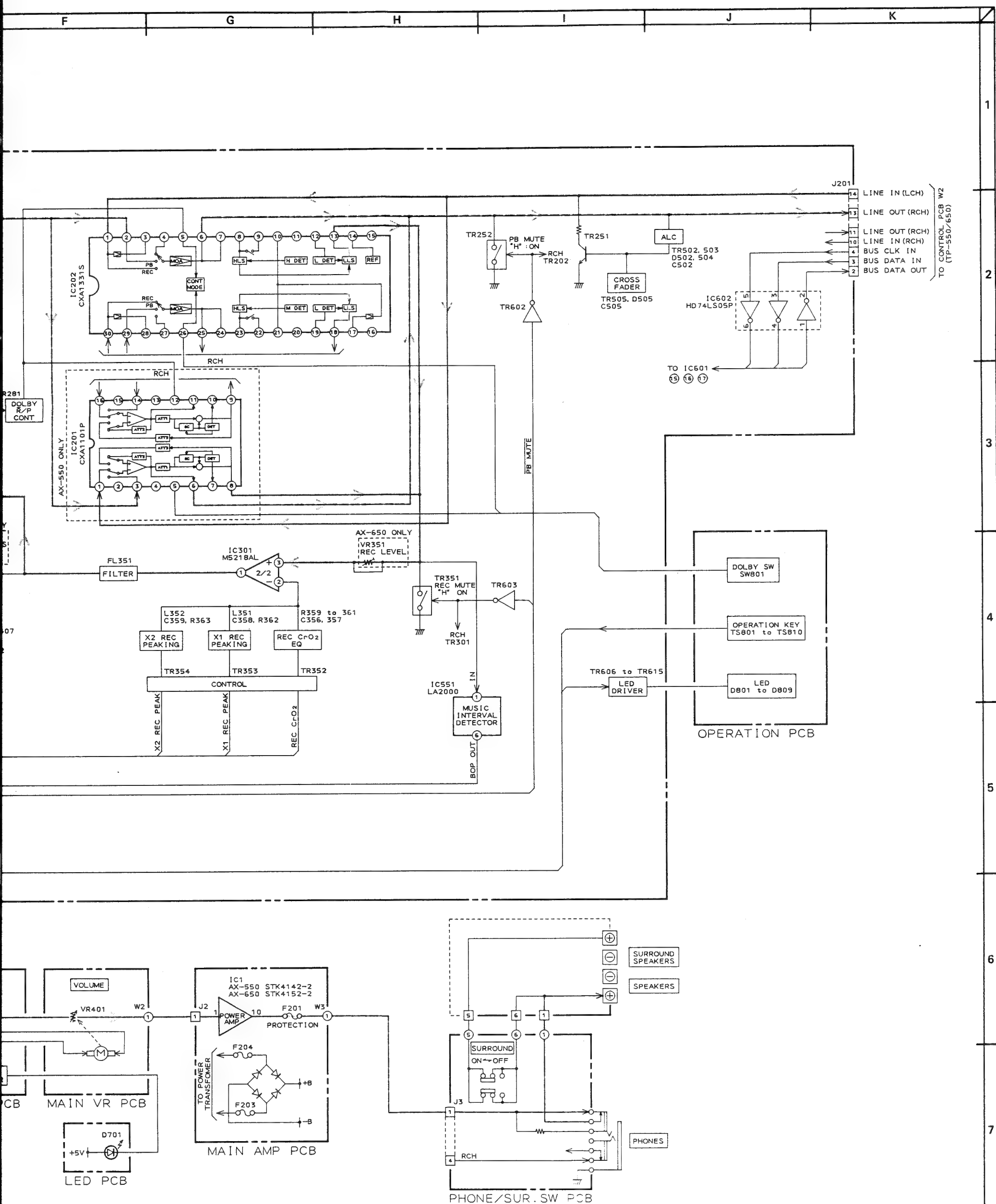
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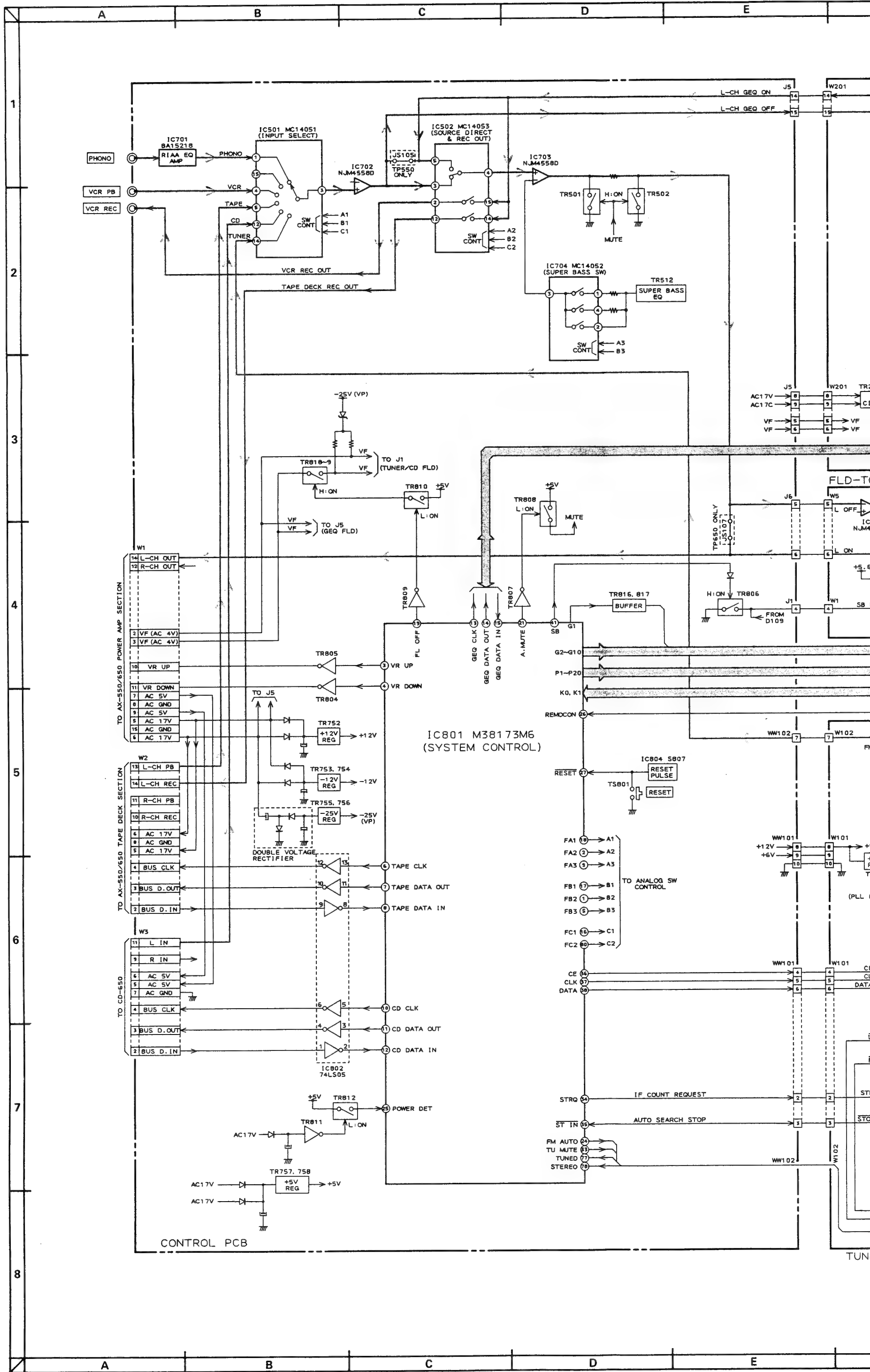
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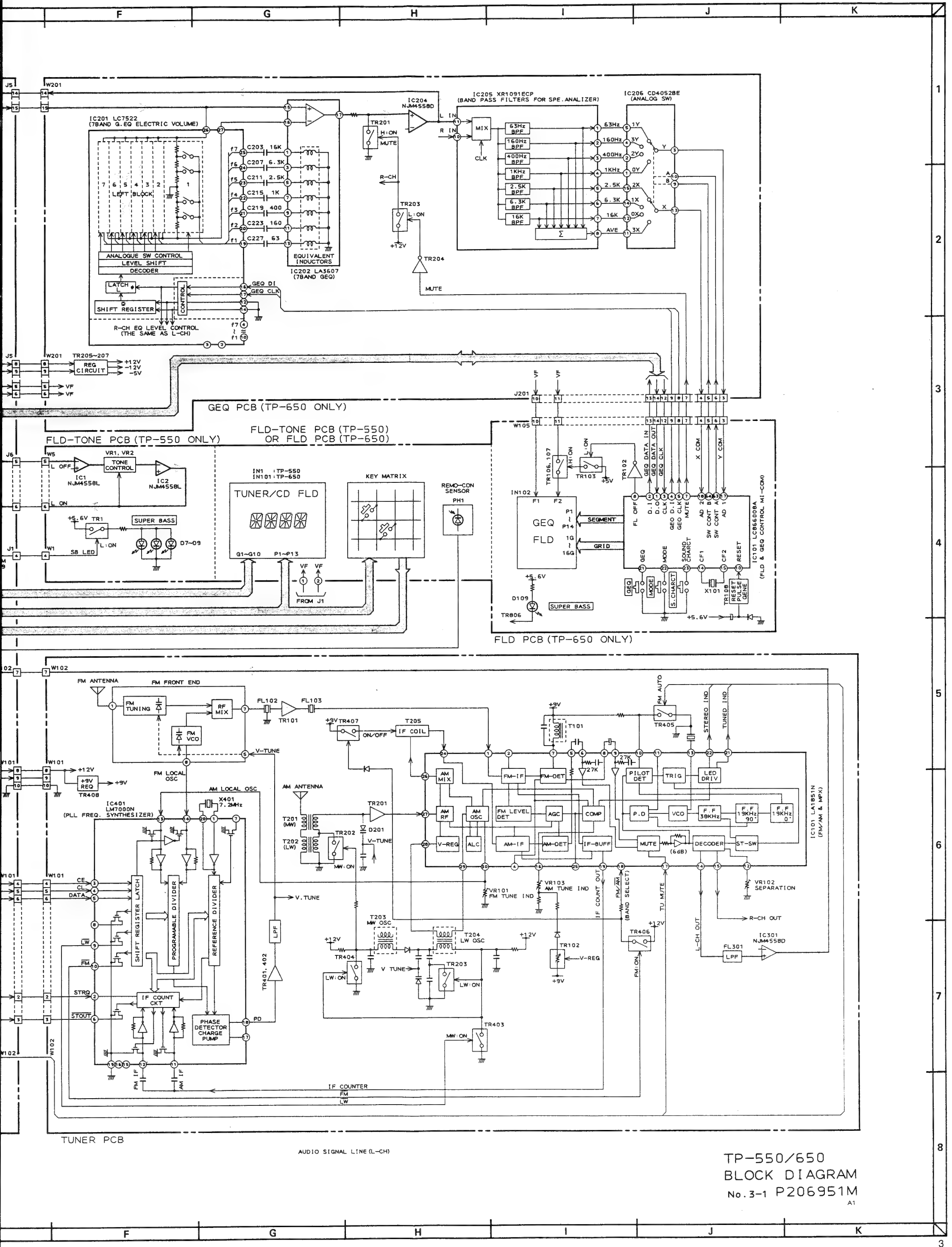


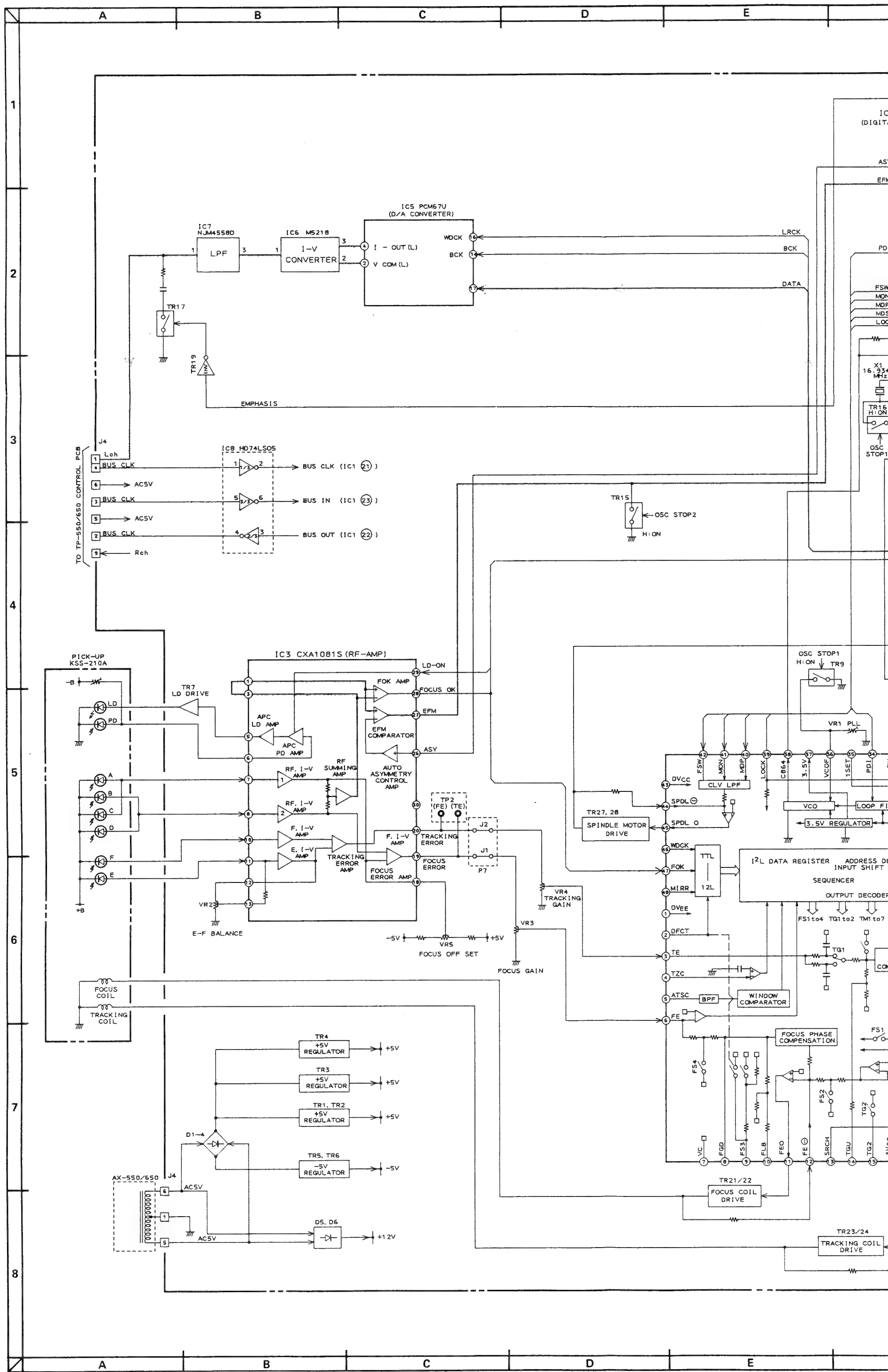


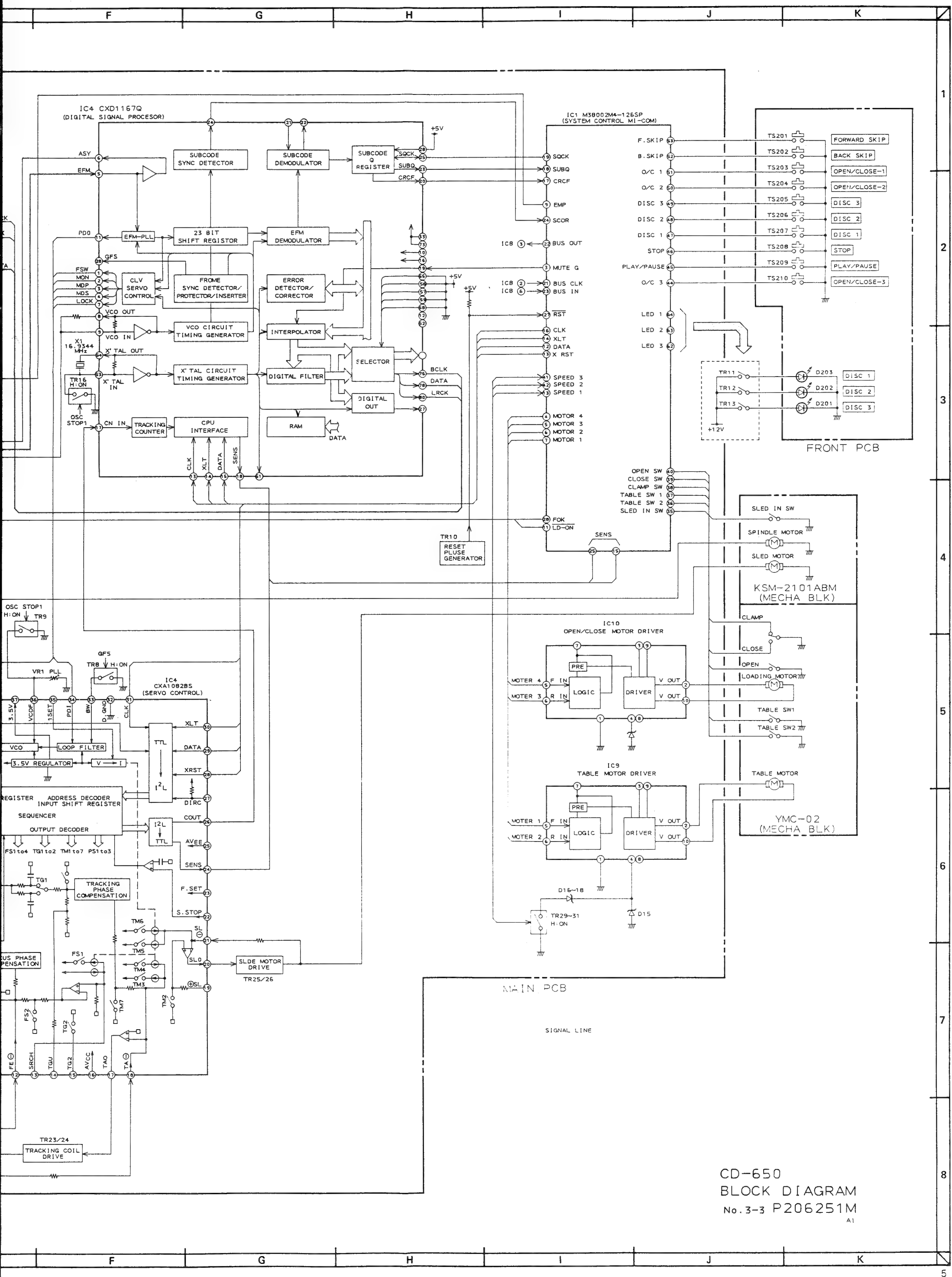
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:REC SIGNAL LINE

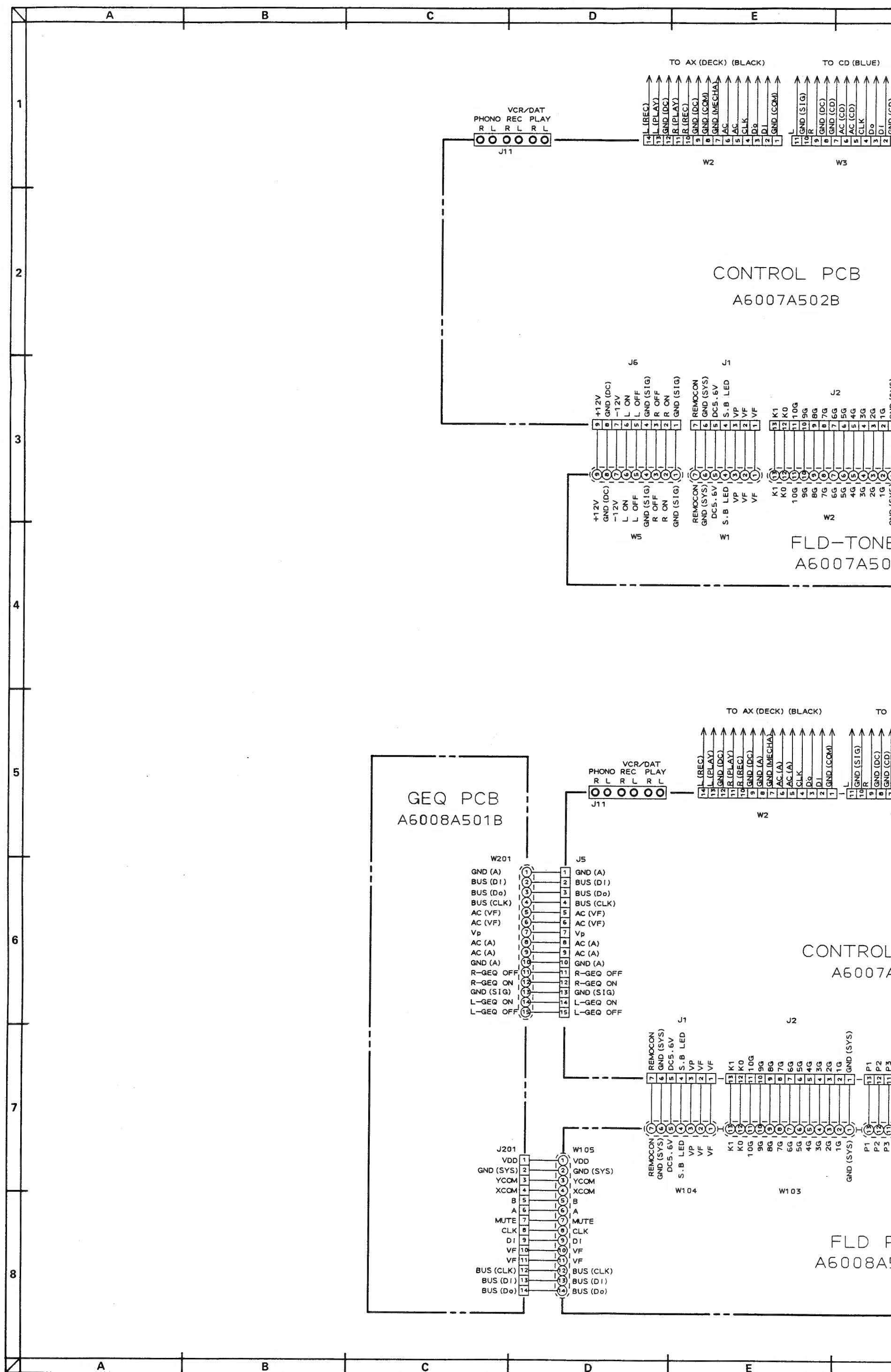
AX-550/650
BLOCK DIAGRAM
No. 3-2 C103051M
A1

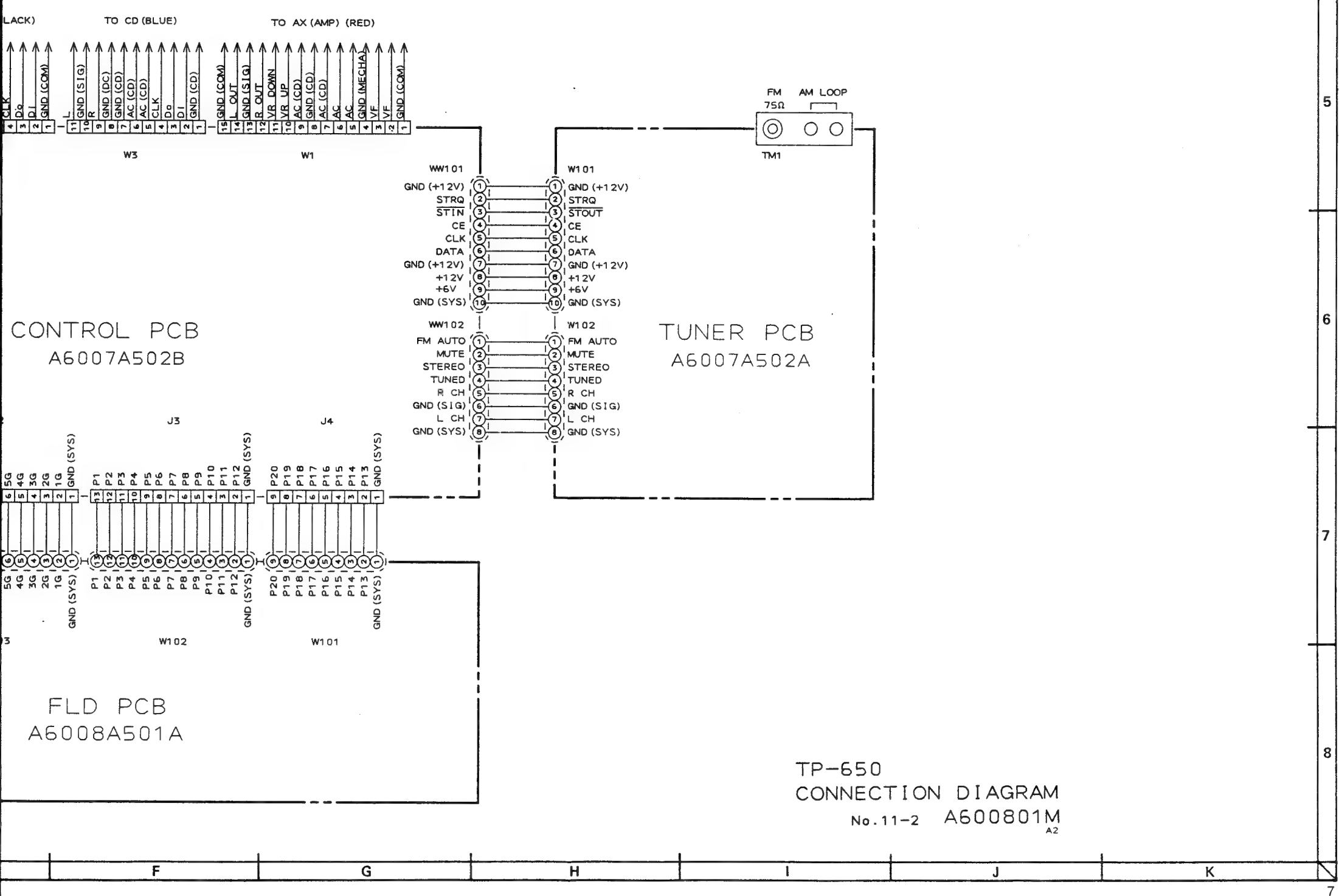
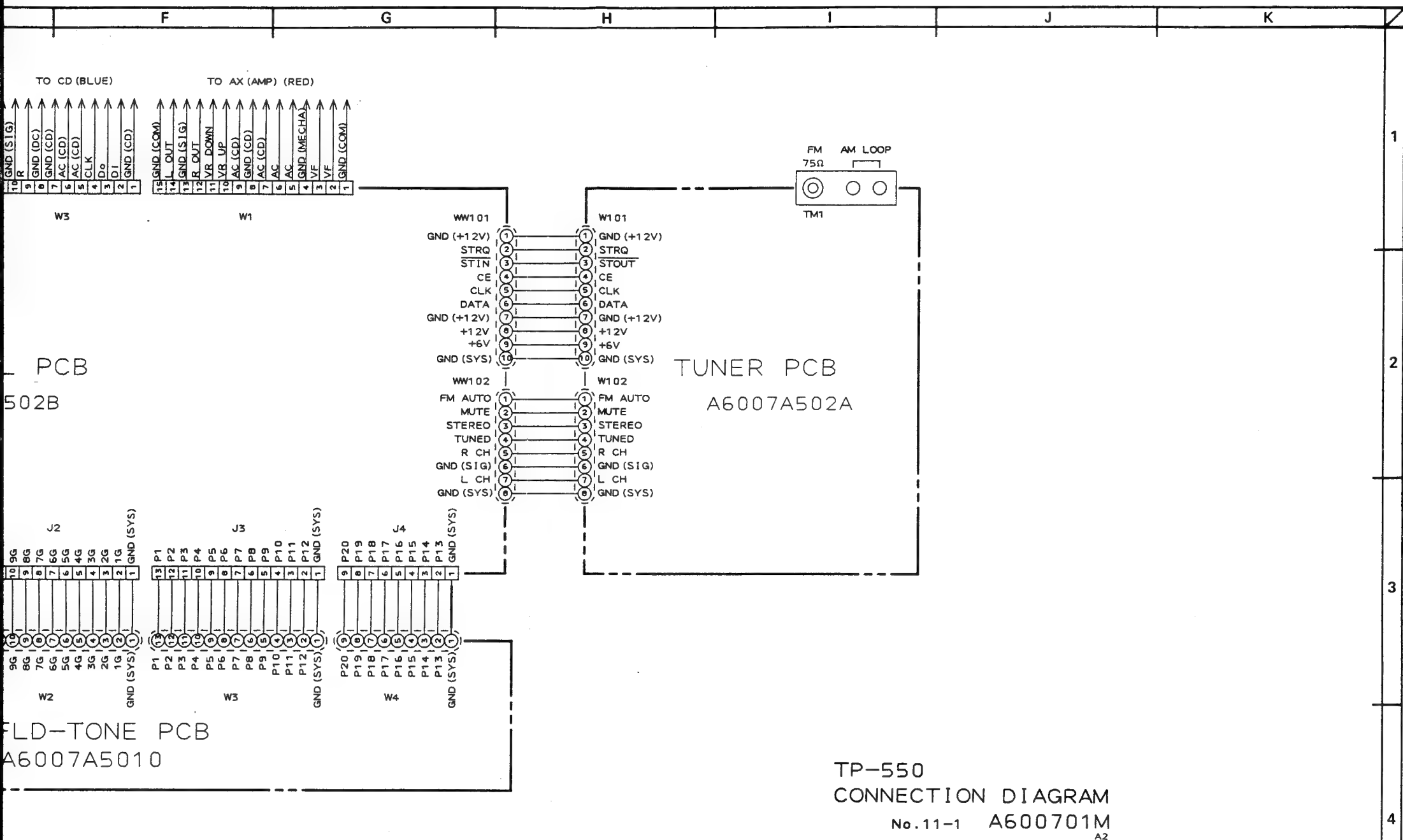


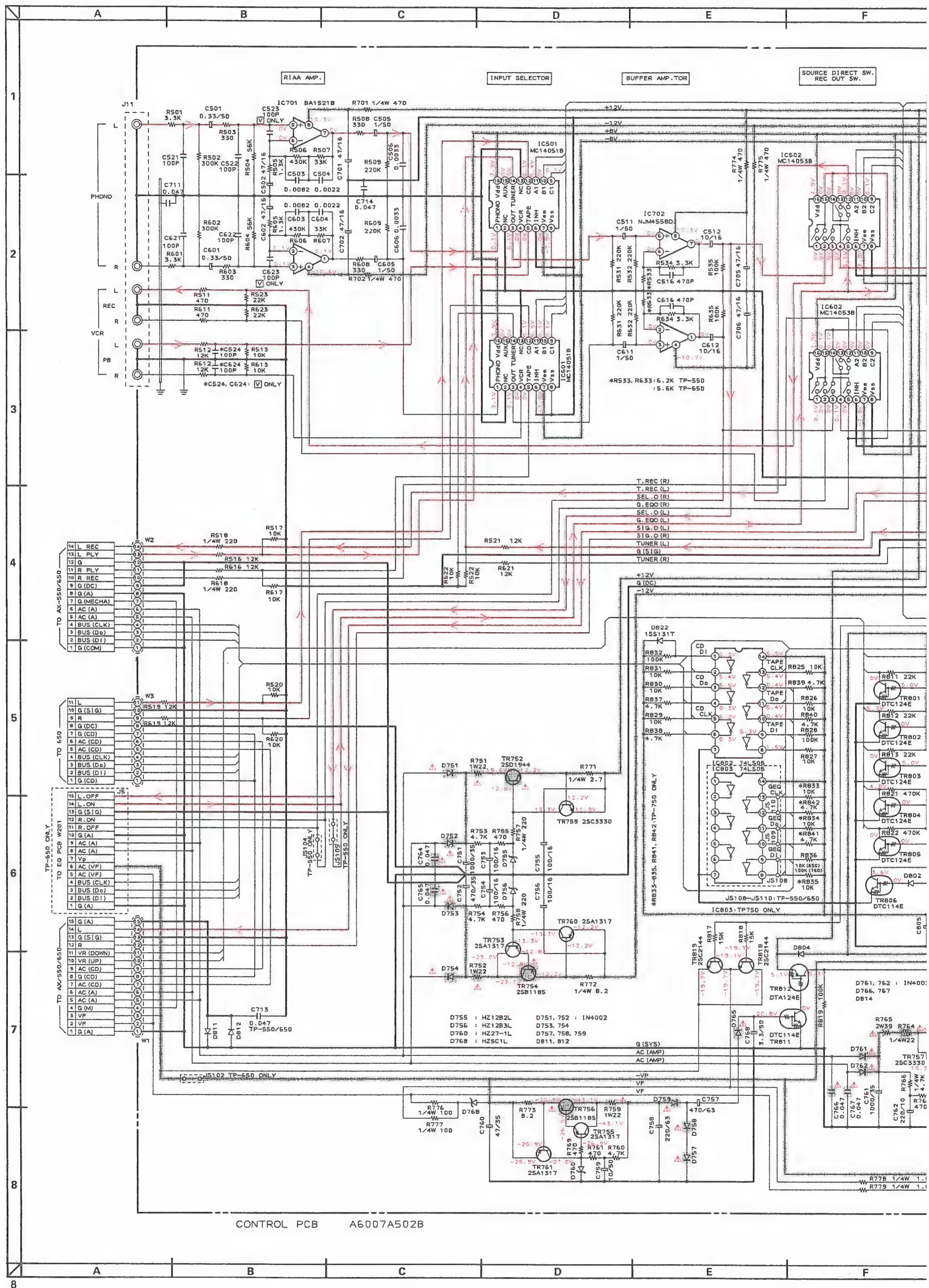


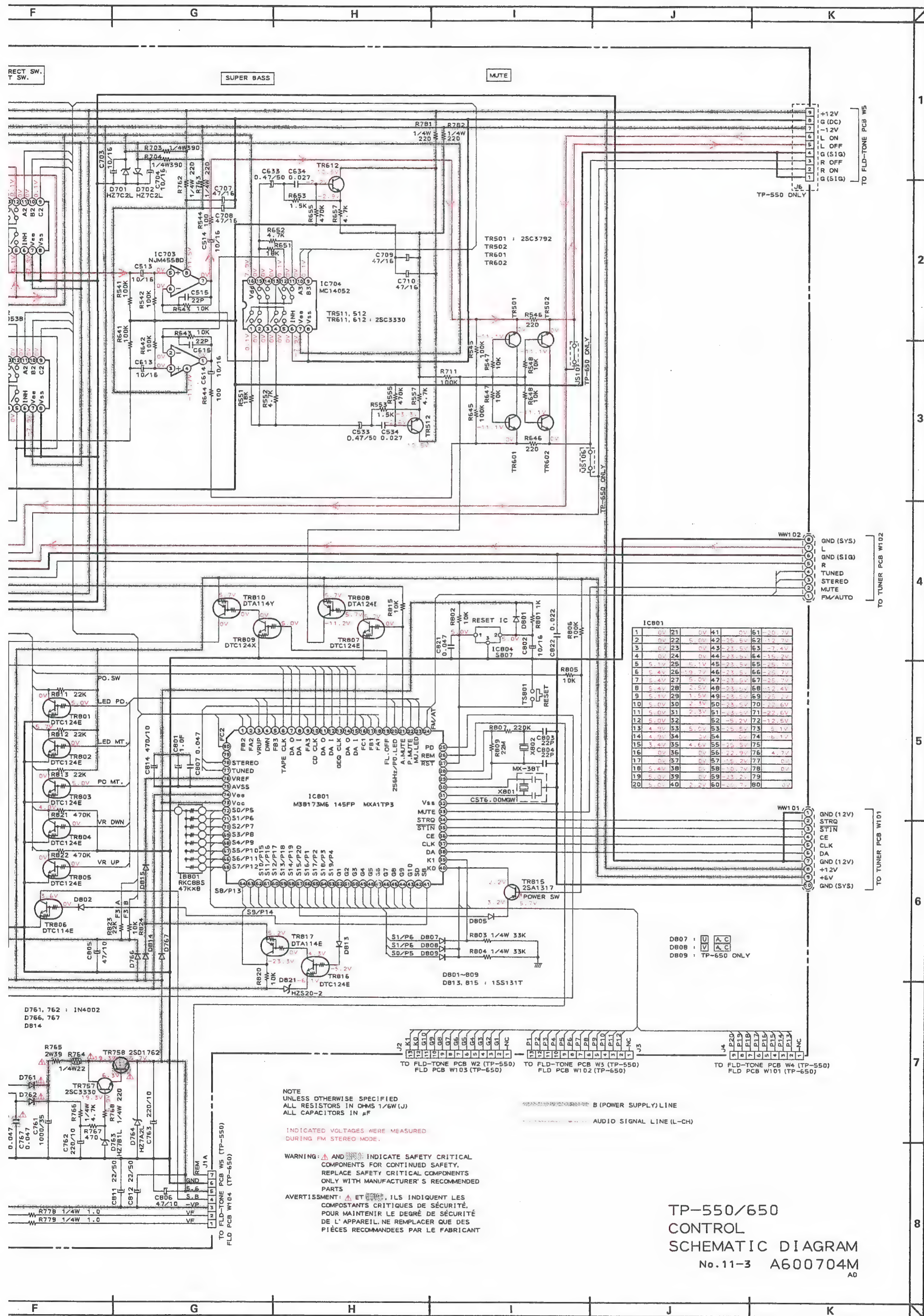


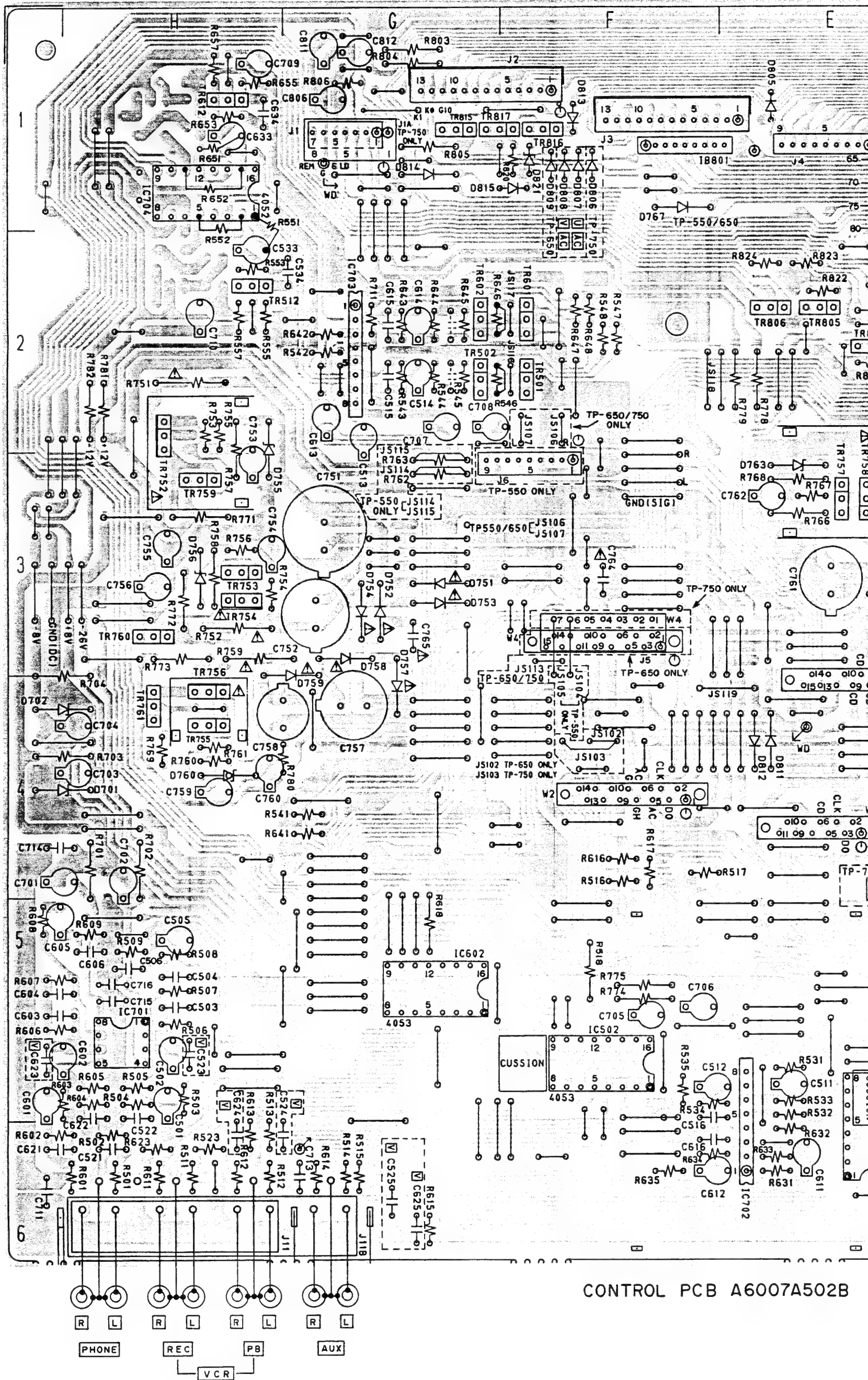


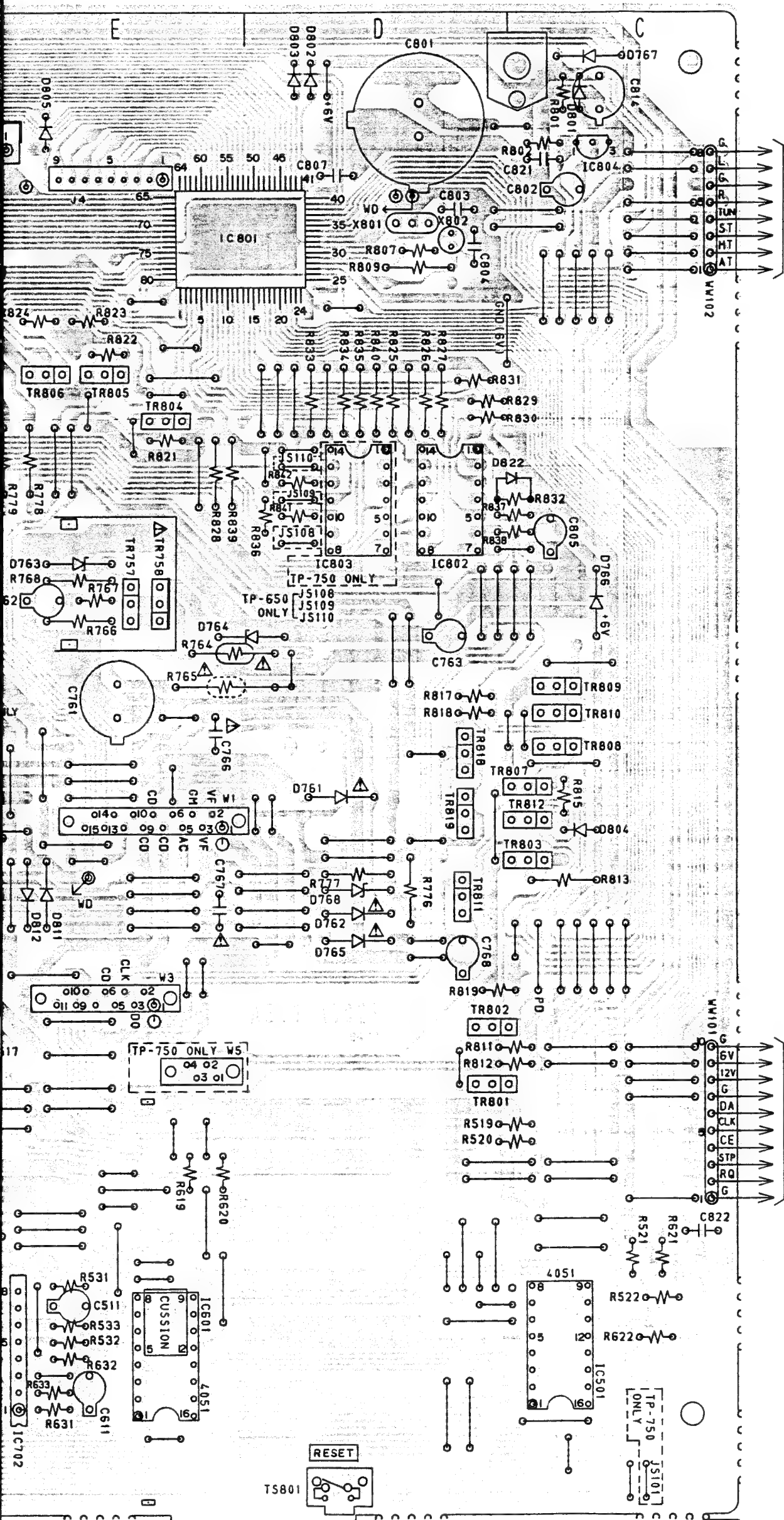












PRINCIPAL PARTS LOCATION

ICs

| | |
|--------|------|
| IC101 | B2,3 |
| IC301 | B1 |
| IC401 | B4,5 |
| IC501 | C5,6 |
| IC502 | F5 |
| IC601 | E5,6 |
| IC602 | G5 |
| IC701 | H5 |
| IC702 | E5,6 |
| IC703 | G2 |
| IC704 | H1 |
| IC801 | D,E1 |
| IC801A | D,E1 |
| IC802 | D2,3 |
| IC803 | D2,3 |
| IC804 | C1 |

TRANSISTORS

| | |
|-------|------|
| TR101 | B3 |
| TR201 | A3 |
| TR202 | A4 |
| TR203 | A3 |
| TR401 | B5 |
| TR402 | B5,6 |
| TR403 | B4 |
| TR404 | B4 |
| TR405 | B2 |
| TR406 | A4 |
| TR407 | A4 |
| TR408 | B4 |
| TR501 | F2 |
| TR502 | G2 |
| TR512 | H2 |
| TR601 | F2 |
| TR602 | G2 |
| TR612 | H1 |
| TR752 | H2 |

| | |
|-------|------|
| TR753 | H3 |
| TR754 | H3 |
| TR755 | H4 |
| TR756 | H4 |
| TR757 | E3 |
| TR758 | E3 |
| TR759 | H3 |
| TR760 | H3 |
| TR761 | H4 |
| TR801 | D5 |
| TR802 | D4 |
| TR803 | C4 |
| TR804 | E2 |
| TR805 | E2 |
| TR806 | E2 |
| TR807 | C3 |
| TR808 | C3 |
| TR809 | C3 |
| TR810 | C3 |
| TR811 | D4 |
| TR812 | C4 |
| TR815 | G1 |
| TR816 | F1 |
| TR817 | F,G1 |
| TR818 | D3 |
| TR819 | D3,4 |

CONNECTORS

| | |
|-------------|------|
| J1,J1A | G1 |
| J2 | F,G1 |
| J3 | E,F1 |
| J4 | E1 |
| J5 | F3 |
| J6 | F,G3 |
| J11,11A,B,C | G,H6 |
| J101 | B3 |

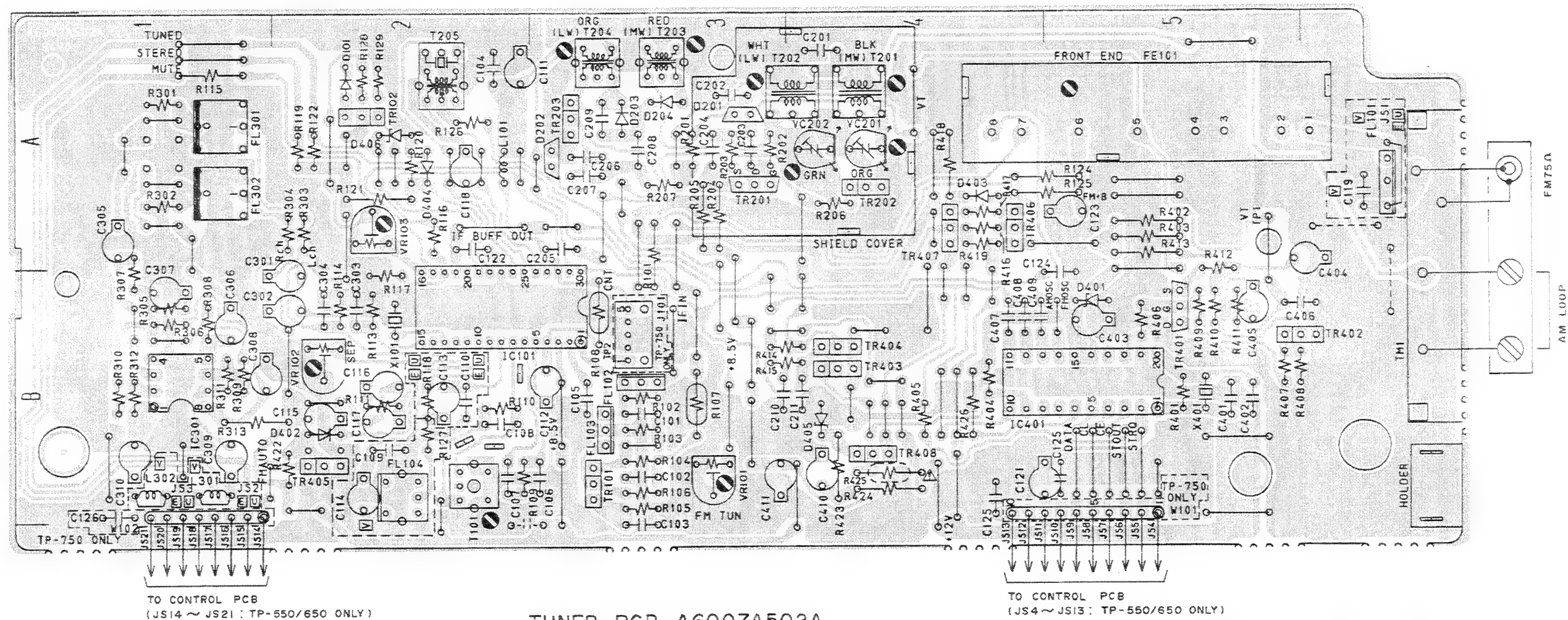
TO TUNER PCB
(JS14~JS21: TP-550/650 ONLY)

TO TUNER PCB
(JS4~JS13: TP-550/650 ONLY)

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.
AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

A6007A502B

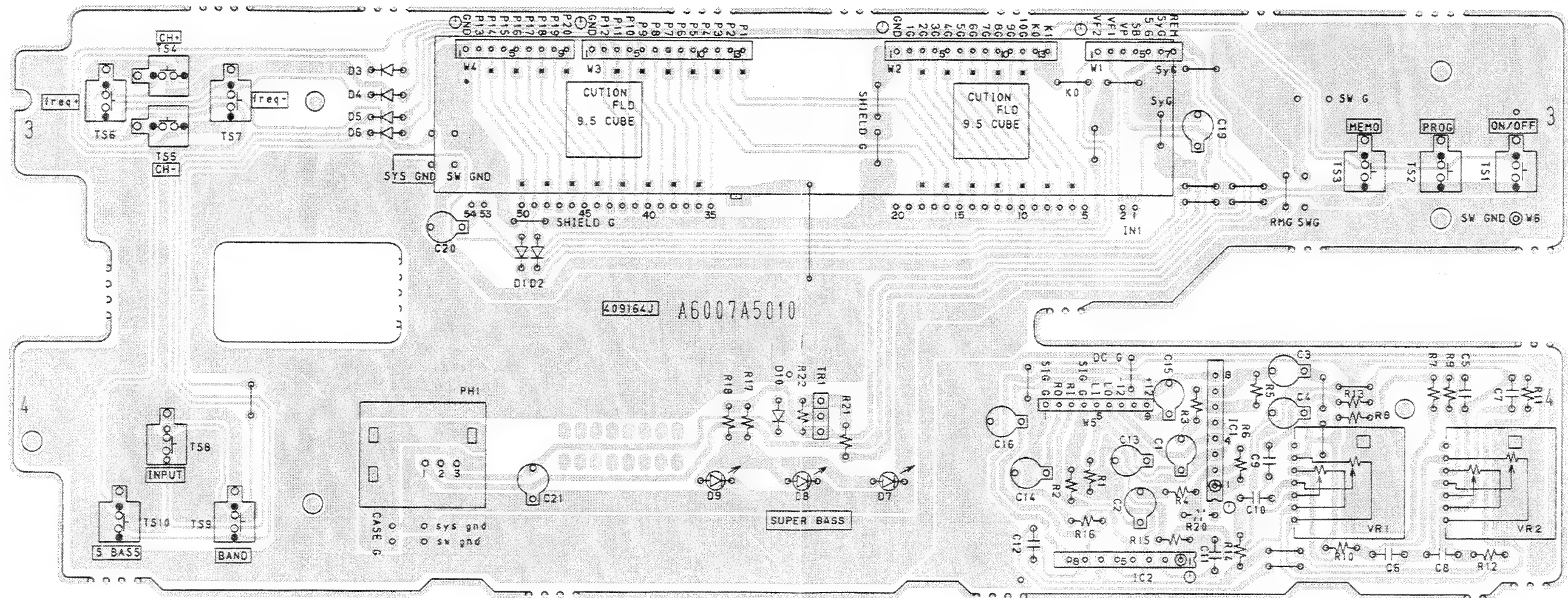
NOTE: PARTS DIFFER DEPENDING ON MODEL NUMBER. REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING PARTS INFORMATION.



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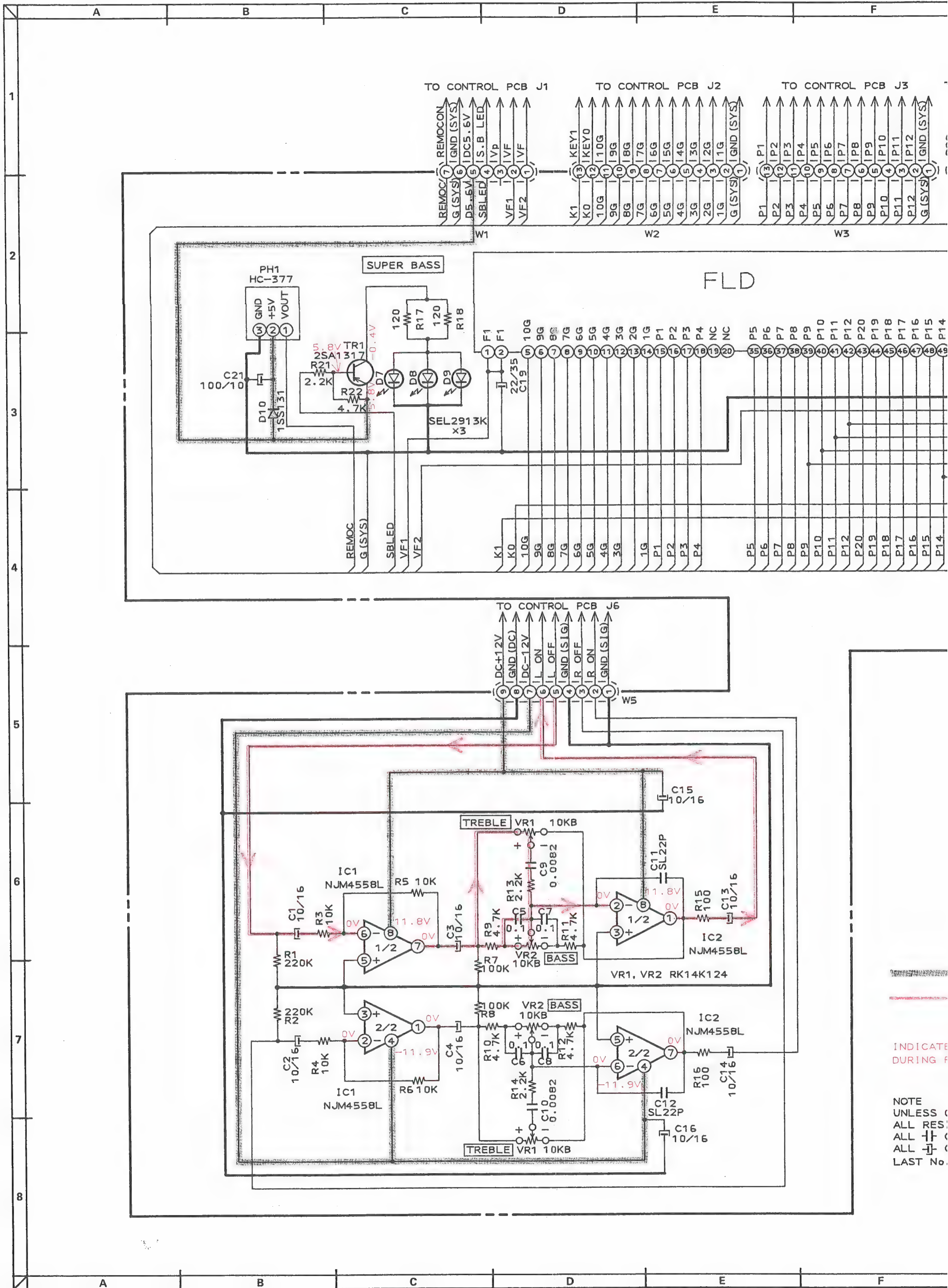
NOTE : PARTS DIFFER DEPENDING ON MODEL NUMBER. REFER TO SCHEMATIC DIAGRAMS FOR PERTAINING PARTS INFORMATION.



FLD - TONE PCB A6007A5010

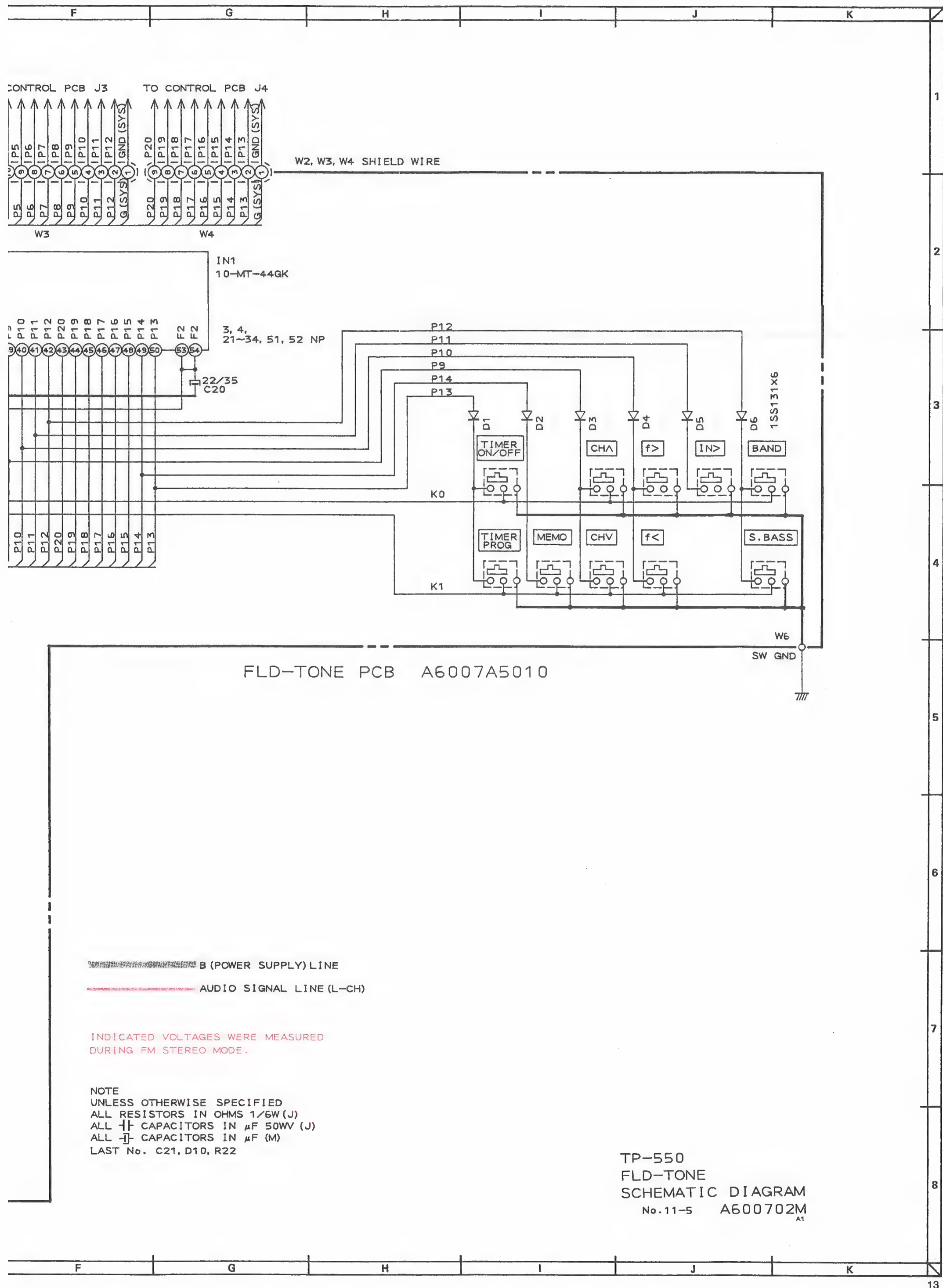
TREBLE

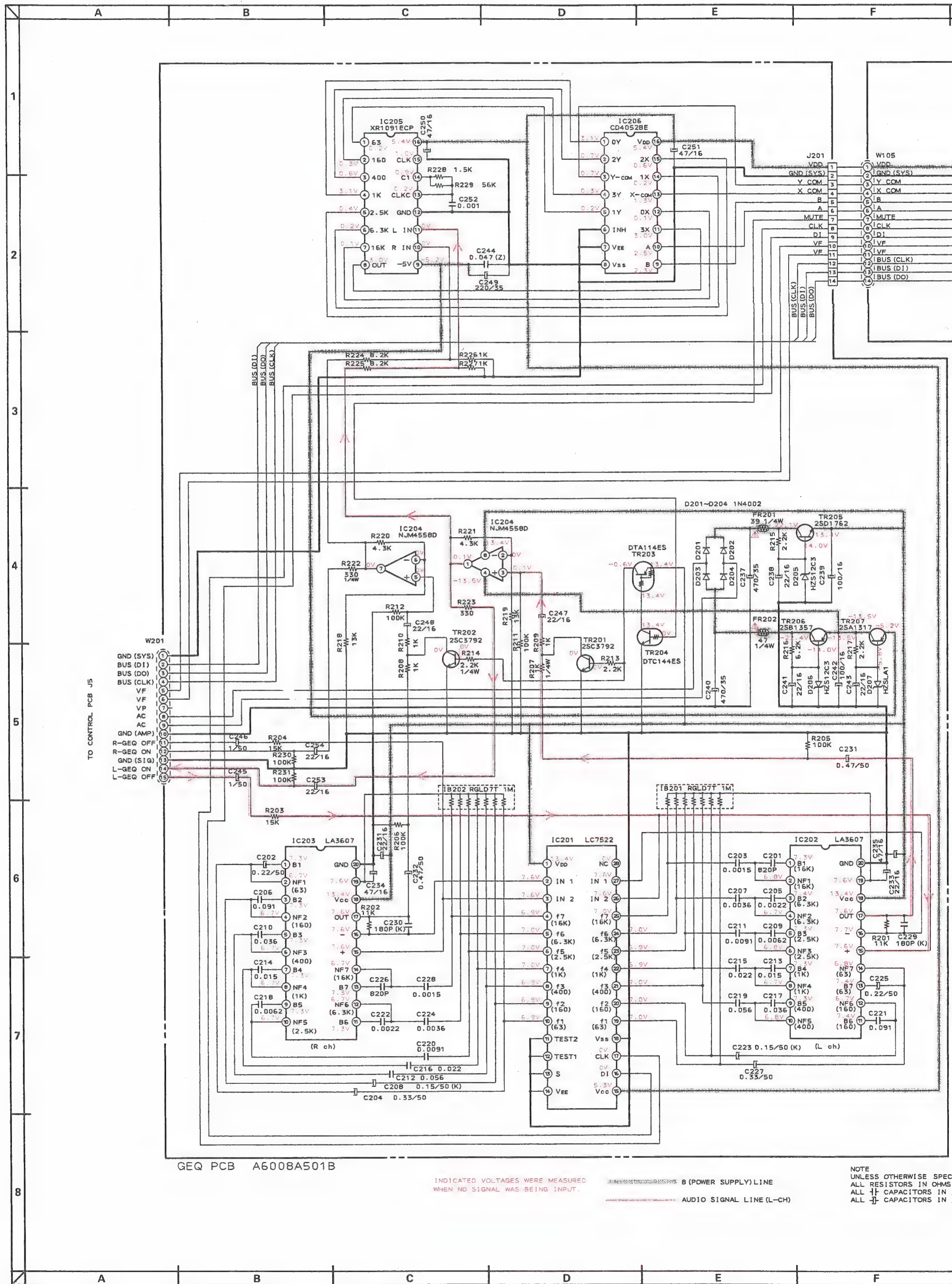
BASS

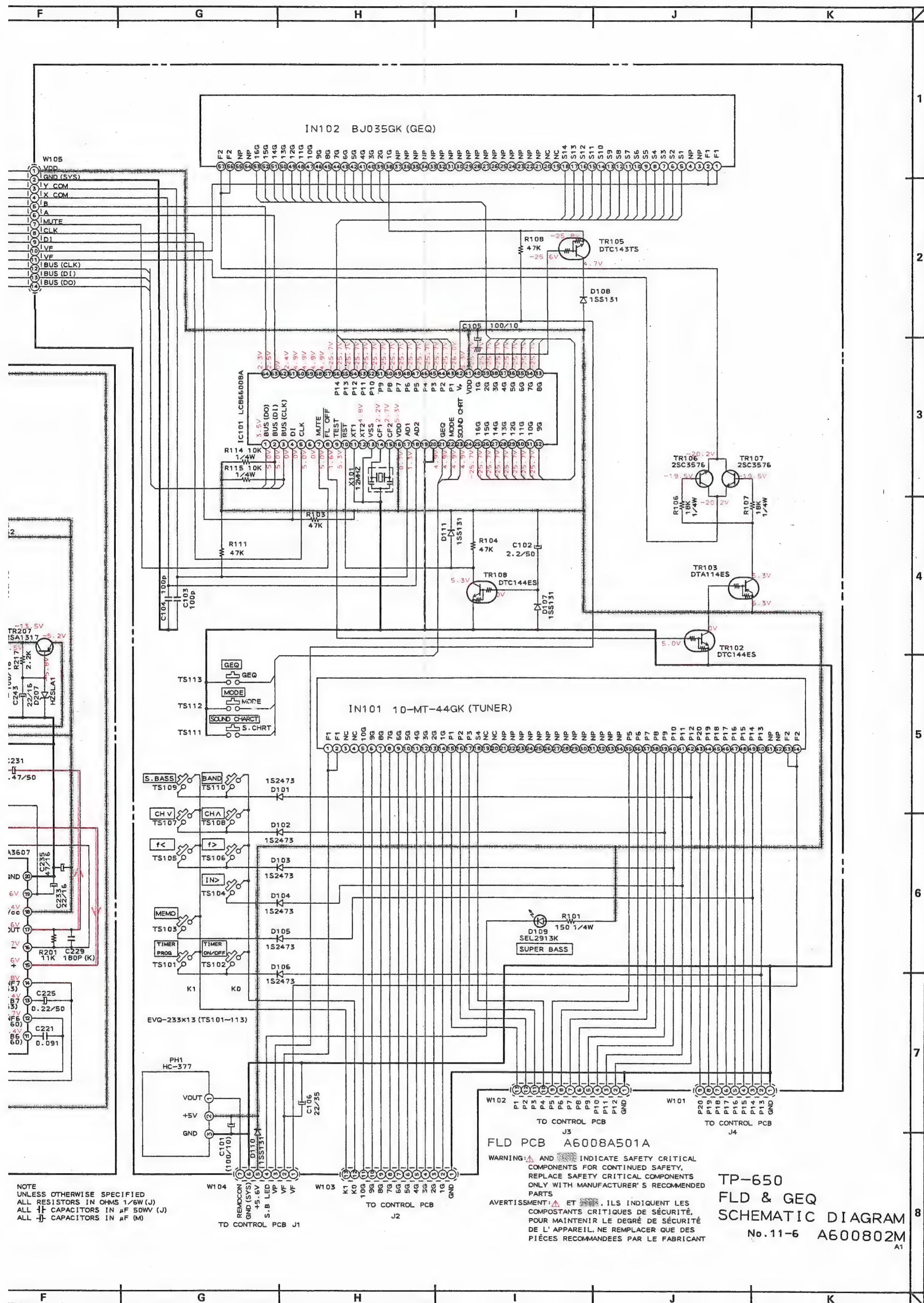


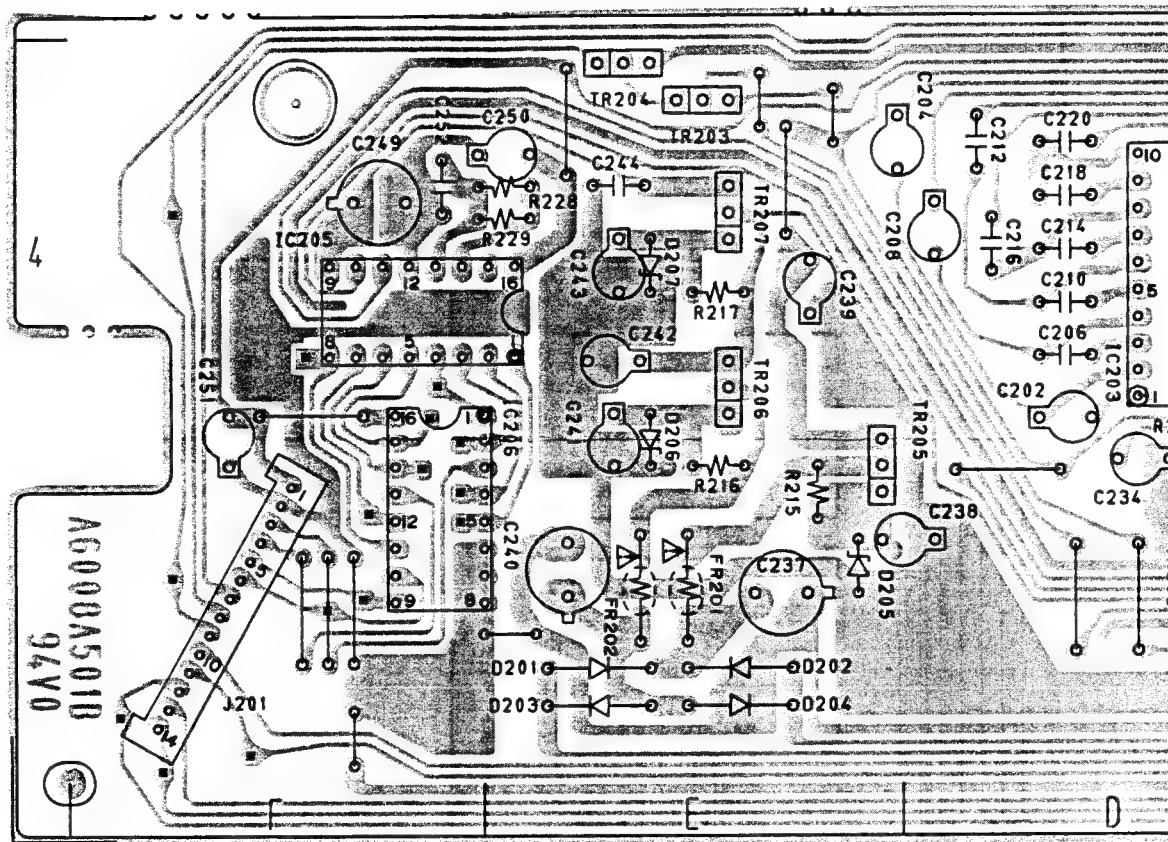
INDICATE
DURING F

NOTE
UNLESS C
ALL RES:
ALL -F C
ALL -F C
LAST No.

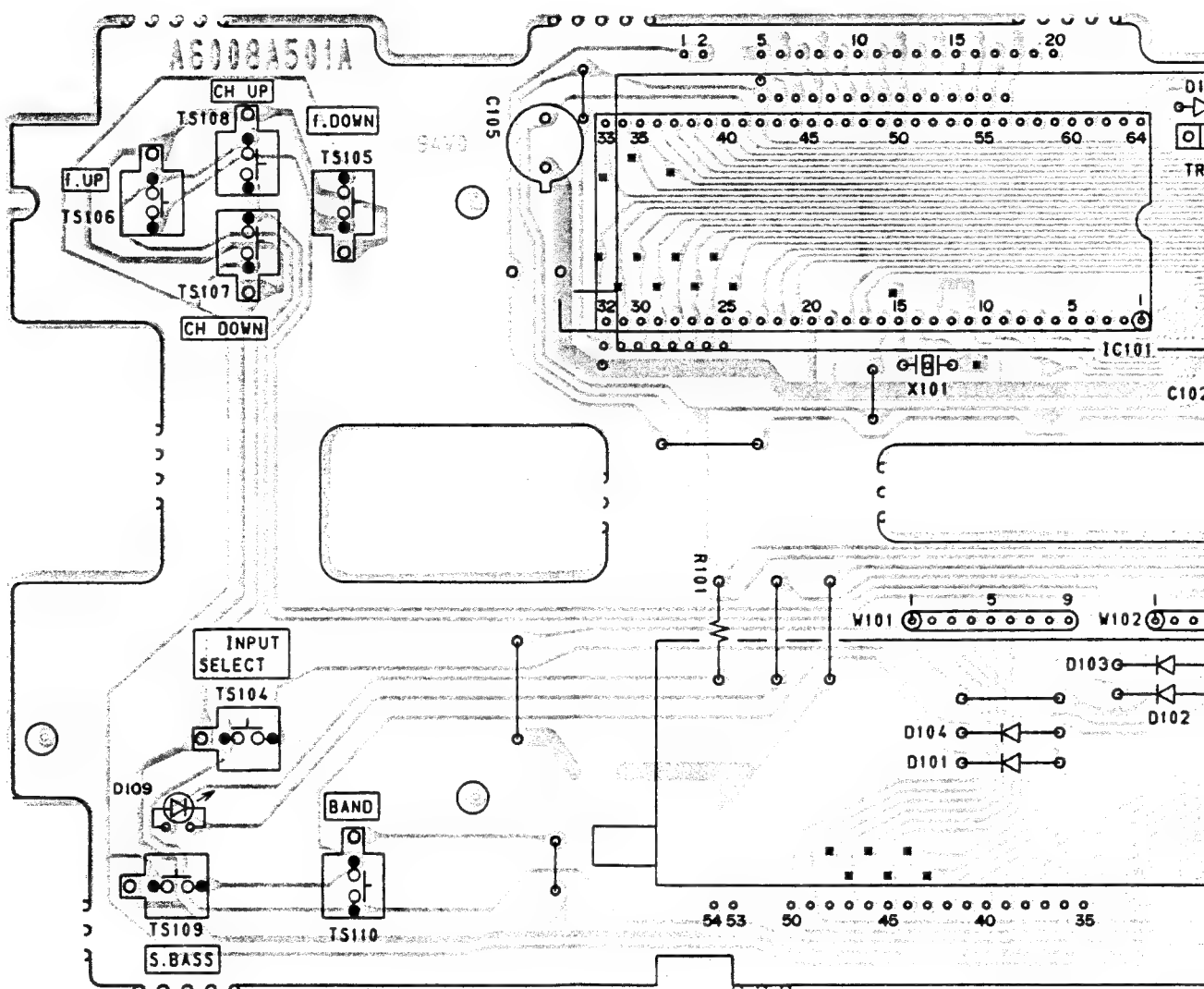




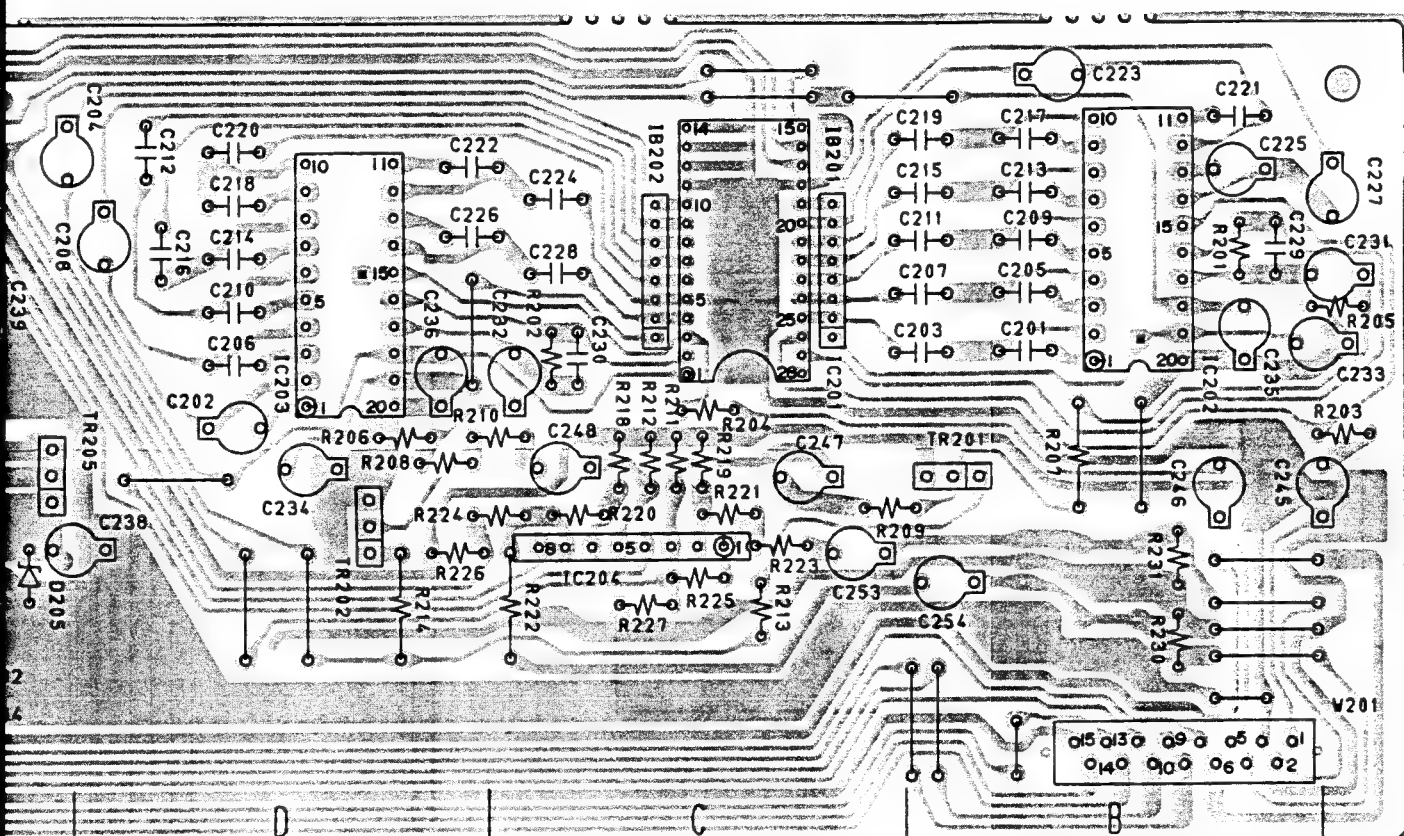




GEQ PCB A



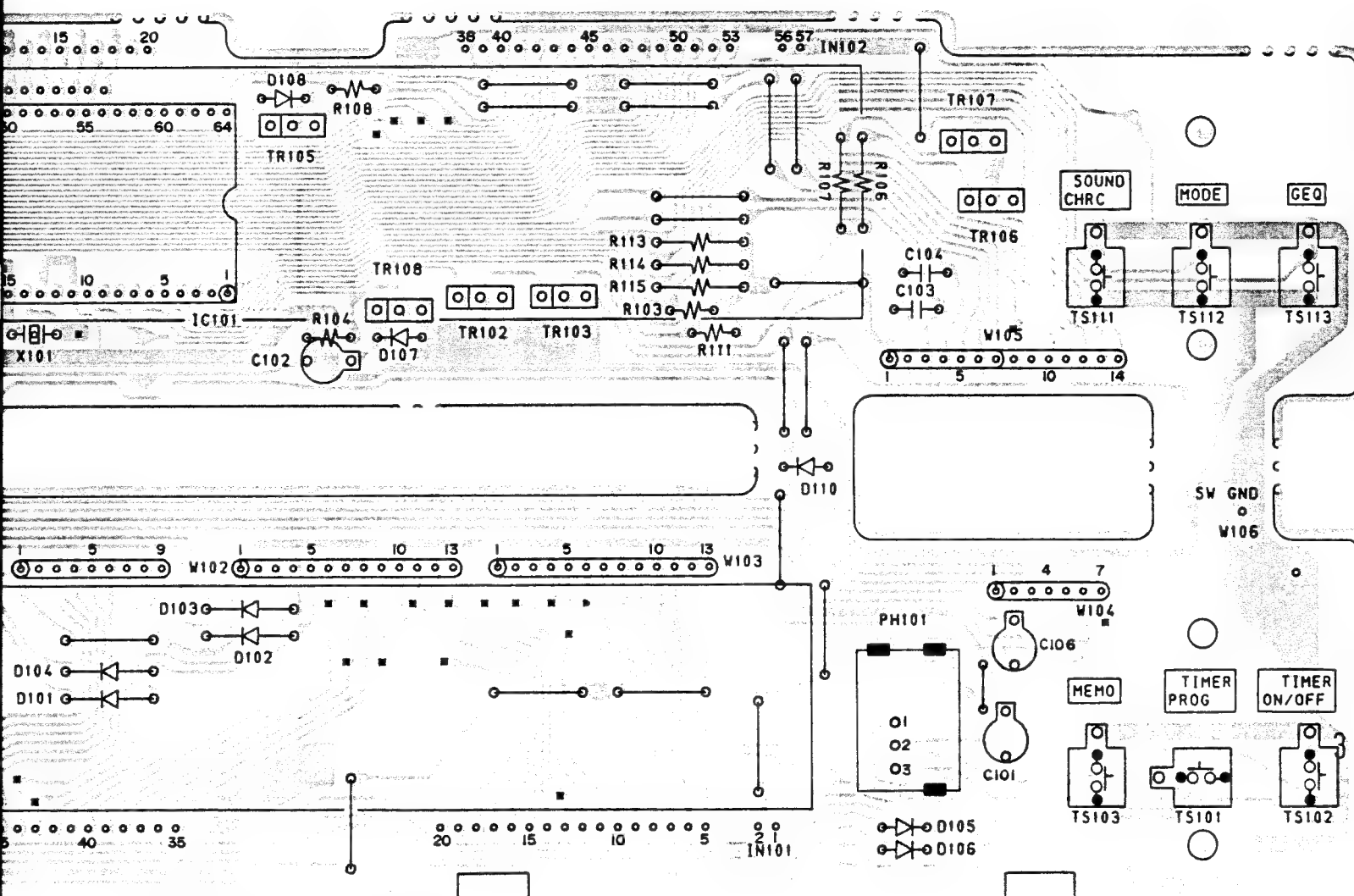
FLD PCB A60



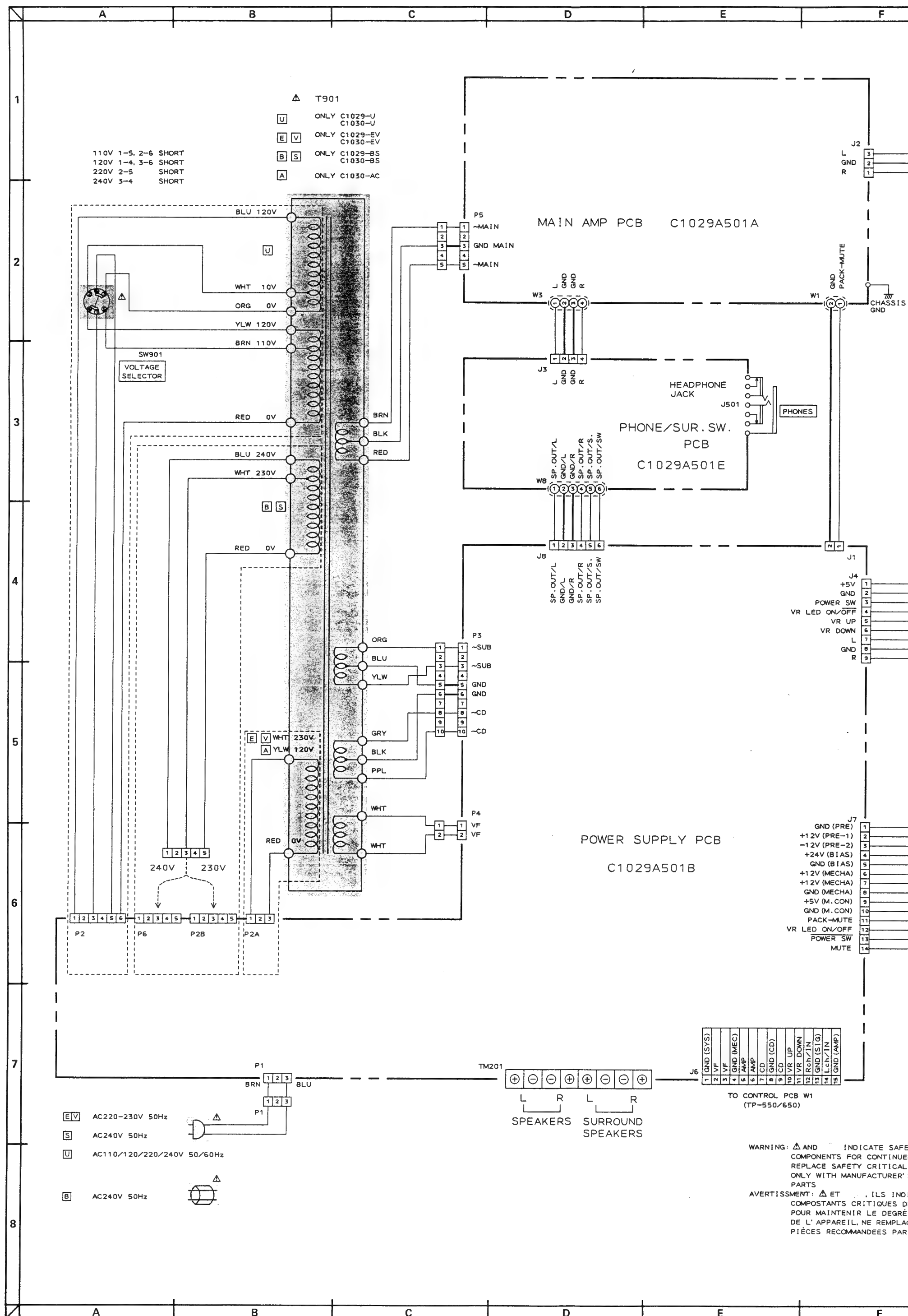
GEQ PCB A6008A501B

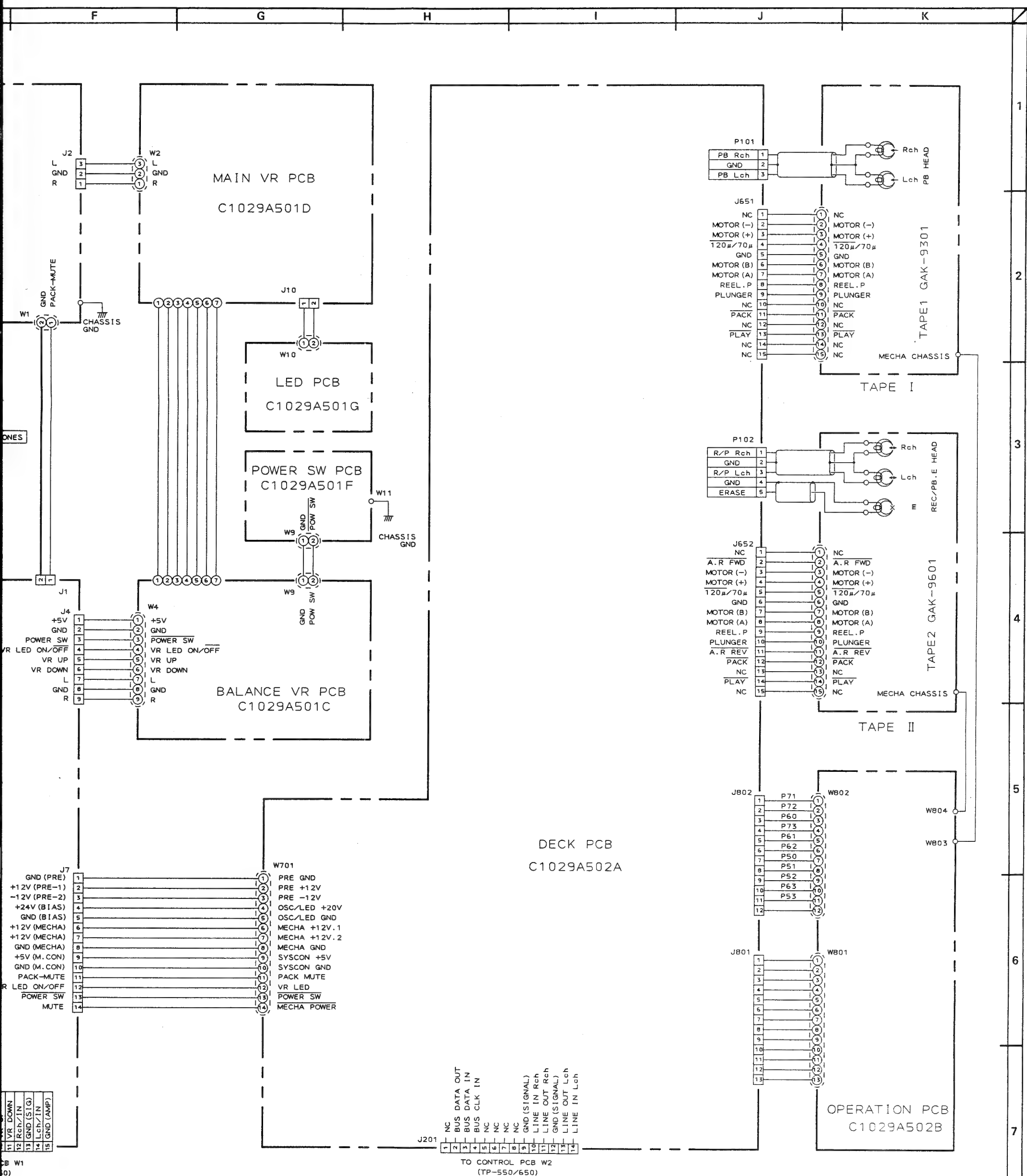
WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY.
REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S
RECOMMENDED PARTS

AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ.
POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL,
NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT



FLD PCB A6008A501A

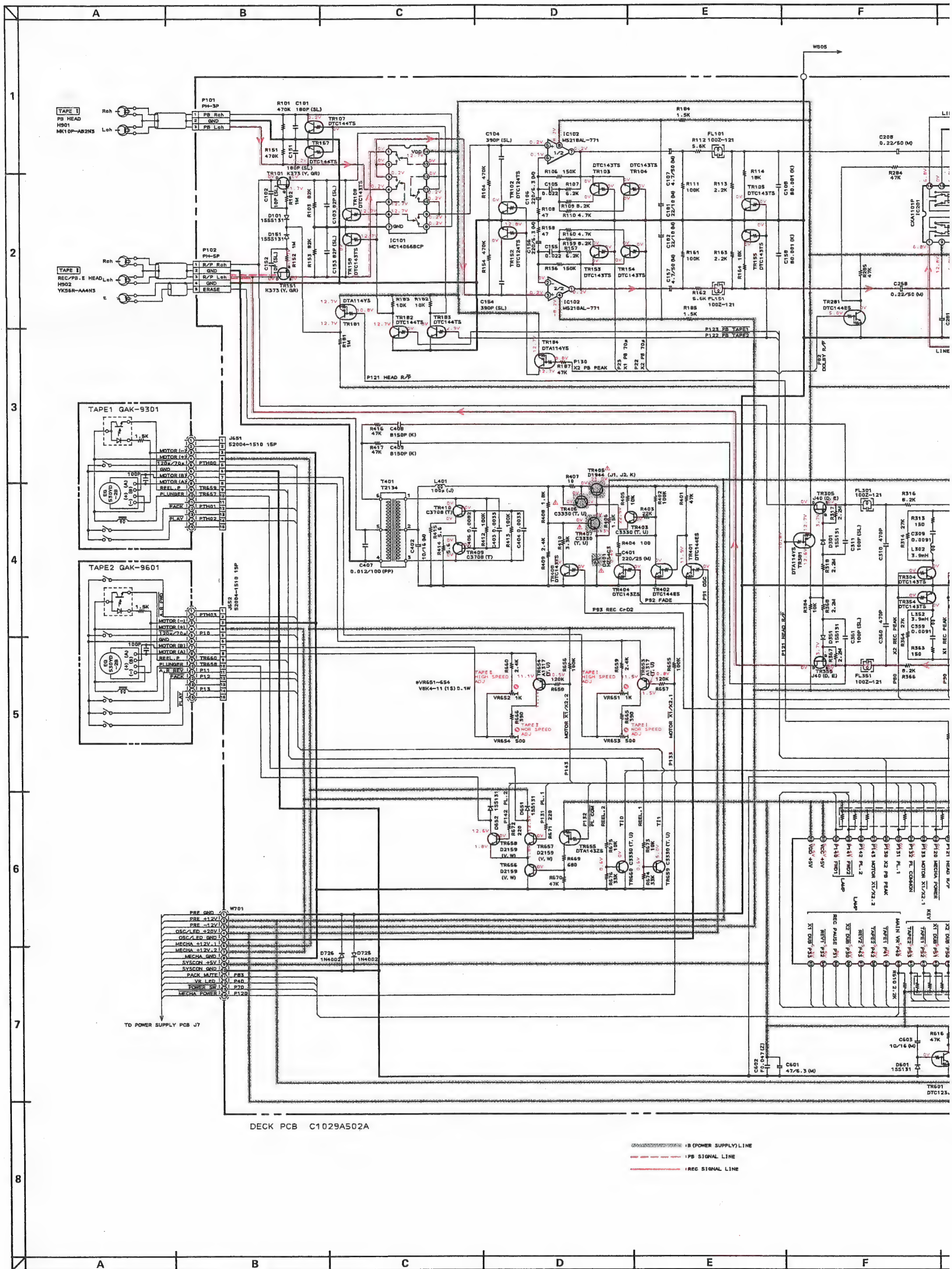


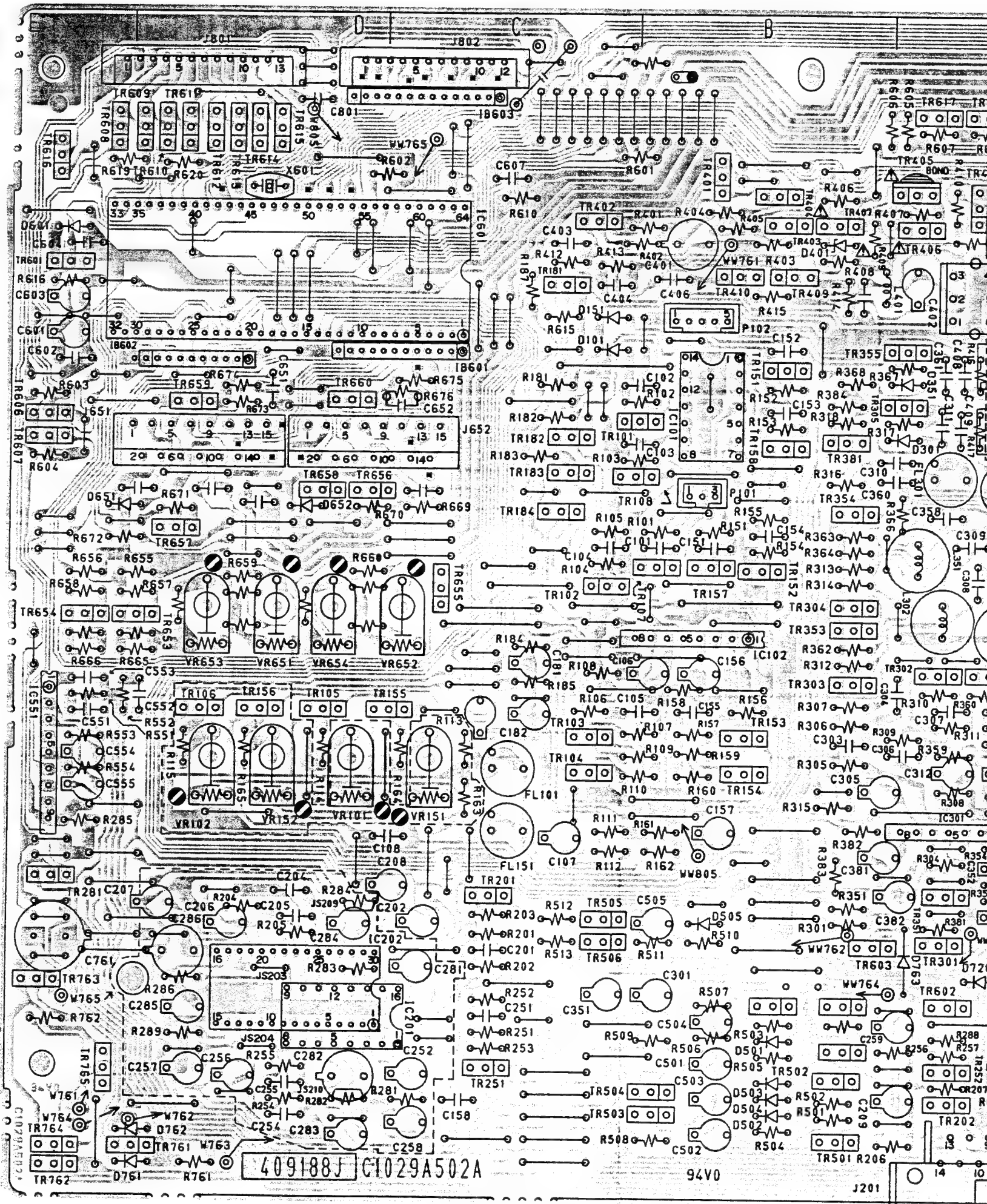


△ AND ○ INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

MENT: △ ET ○ ILS INDIQUENT LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

AX-550/650
CONNECTION DIAGRAM
No. 11-7 C102901M
A1



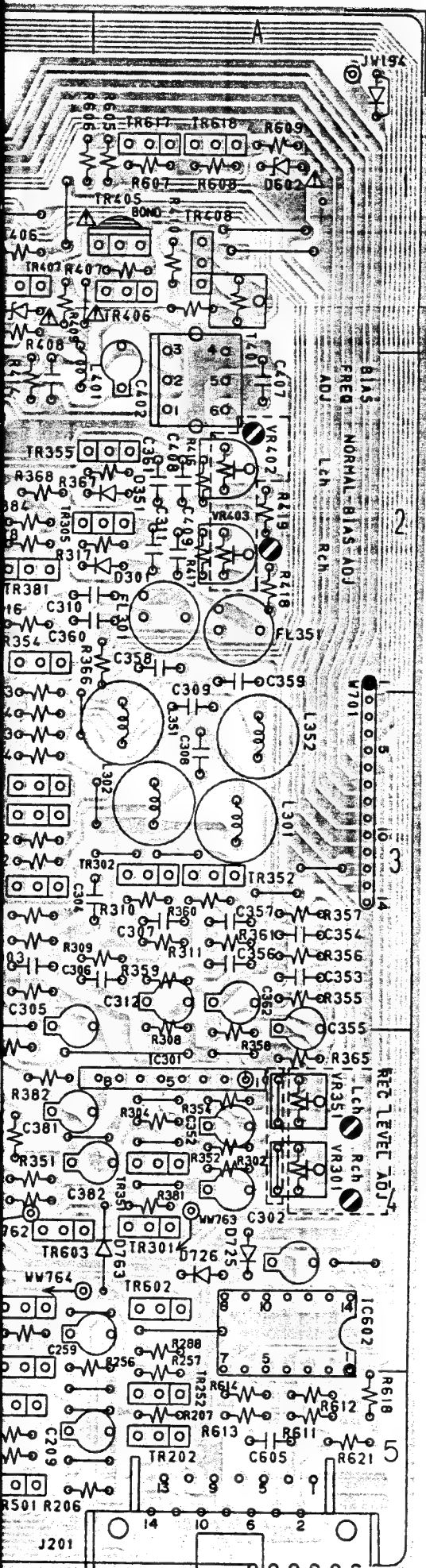


DECK PCB C1029A502A

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

NOTE : PARTS DIFFER DEPENDING ON REFER TO SCHEMATIC DIAGRAMS PARTS INFORMATION.



PRINCIPAL PARTS LOCATION

ICs

| | |
|-------|------|
| IC101 | B2 |
| IC102 | B3 |
| IC201 | C,D4 |
| IC202 | D4 |
| IC301 | A4 |
| IC551 | E3 |
| IC601 | D1,2 |
| IC602 | A4 |

WIRES

| | |
|------|------|
| W701 | A3 |
| J651 | D2 |
| J652 | C,D2 |
| J801 | D1 |
| J802 | C1 |

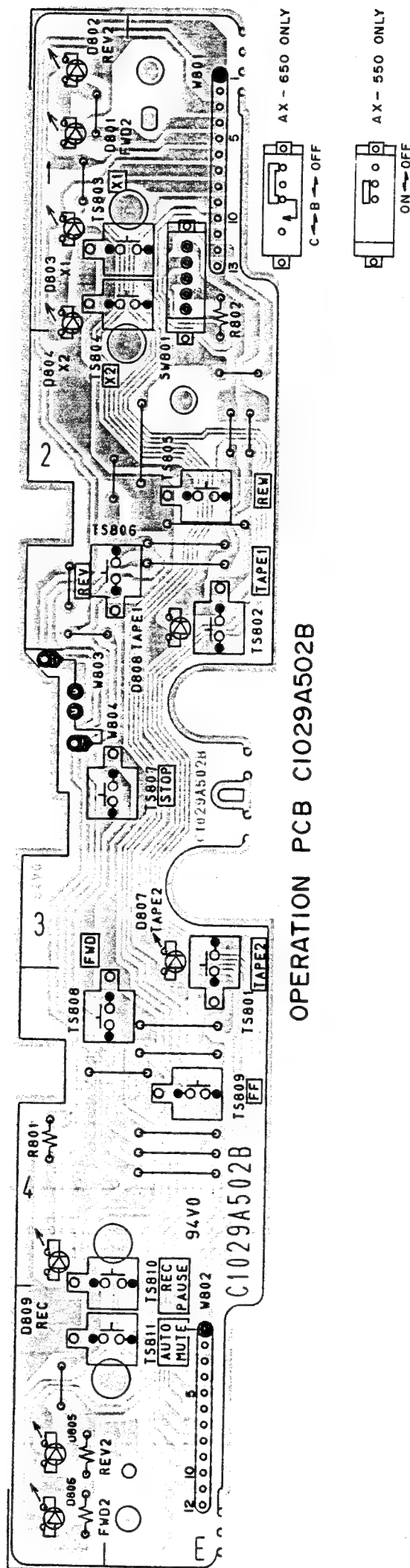
CONNECTORS

| | |
|------|----|
| P101 | B2 |
| P102 | B2 |

TRANSISTORS

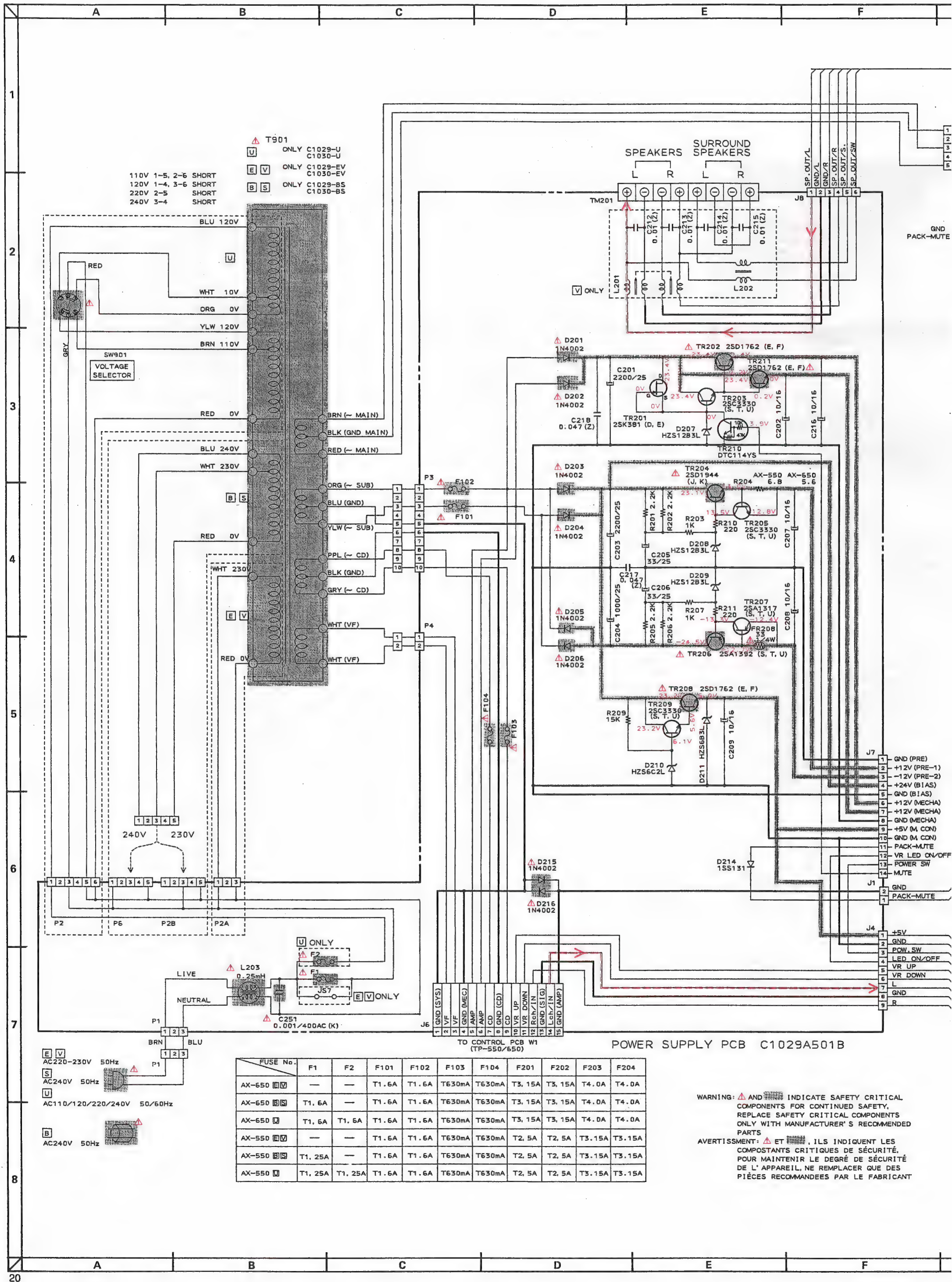
| | |
|-------|------|
| TR101 | B,C2 |
| TR102 | C3 |
| TR103 | C3 |
| TR104 | C3 |
| TR105 | D3 |
| TR106 | D3 |
| TR107 | B,C3 |
| TR108 | B,C2 |
| TR151 | B2 |
| TR152 | B3 |
| TR153 | B3 |
| TR154 | B3 |
| TR155 | C,B3 |
| TR156 | D3 |
| TR157 | B3 |
| TR158 | B2 |
| TR181 | C2 |
| TR182 | C2 |
| TR183 | C2 |
| TR184 | C2 |
| TR201 | C4 |
| TR202 | A5 |
| TR251 | C5 |
| TR252 | A5 |
| TR281 | E4 |
| TR301 | A4 |
| TR302 | A3 |
| TR303 | B3 |
| TR304 | B3 |
| TR305 | A,B2 |

| | |
|-------|------|
| TR351 | A4 |
| TR352 | A3 |
| TR353 | B3 |
| TR354 | B2 |
| TR355 | A,B2 |
| TR381 | B2 |
| TR401 | B1 |
| TR402 | C1 |
| TR403 | B1 |
| TR404 | B1 |
| TR405 | A1 |
| TR406 | A1 |
| TR407 | B1 |
| TR408 | A1 |
| TR409 | B2 |
| TR410 | B1,2 |
| TR501 | B5 |
| TR502 | B5 |
| TR503 | B,C5 |
| TR504 | B,C5 |
| TR505 | C4 |
| TR506 | C4 |
| TR601 | E1,2 |
| TR602 | A4 |
| TR603 | B4 |
| TR606 | E2 |
| TR607 | E2 |
| TR608 | E1 |
| TR609 | D1 |
| TR610 | D1 |
| TR611 | D1 |
| TR612 | D1 |
| TR613 | D1 |
| TR614 | D1 |
| TR615 | D1 |
| TR616 | E1 |
| TR617 | A1 |
| TR618 | A1 |
| TR653 | D,E3 |
| TR654 | E3 |
| TR655 | C3 |
| TR656 | D2 |
| TR657 | D2 |
| TR658 | D2 |
| TR659 | D2 |
| TR660 | D2 |
| TR761 | D,E5 |
| TR762 | E5 |
| TR763 | E4 |
| TR764 | E5 |
| TR765 | E5 |



OPERATION PCB C1029A502B

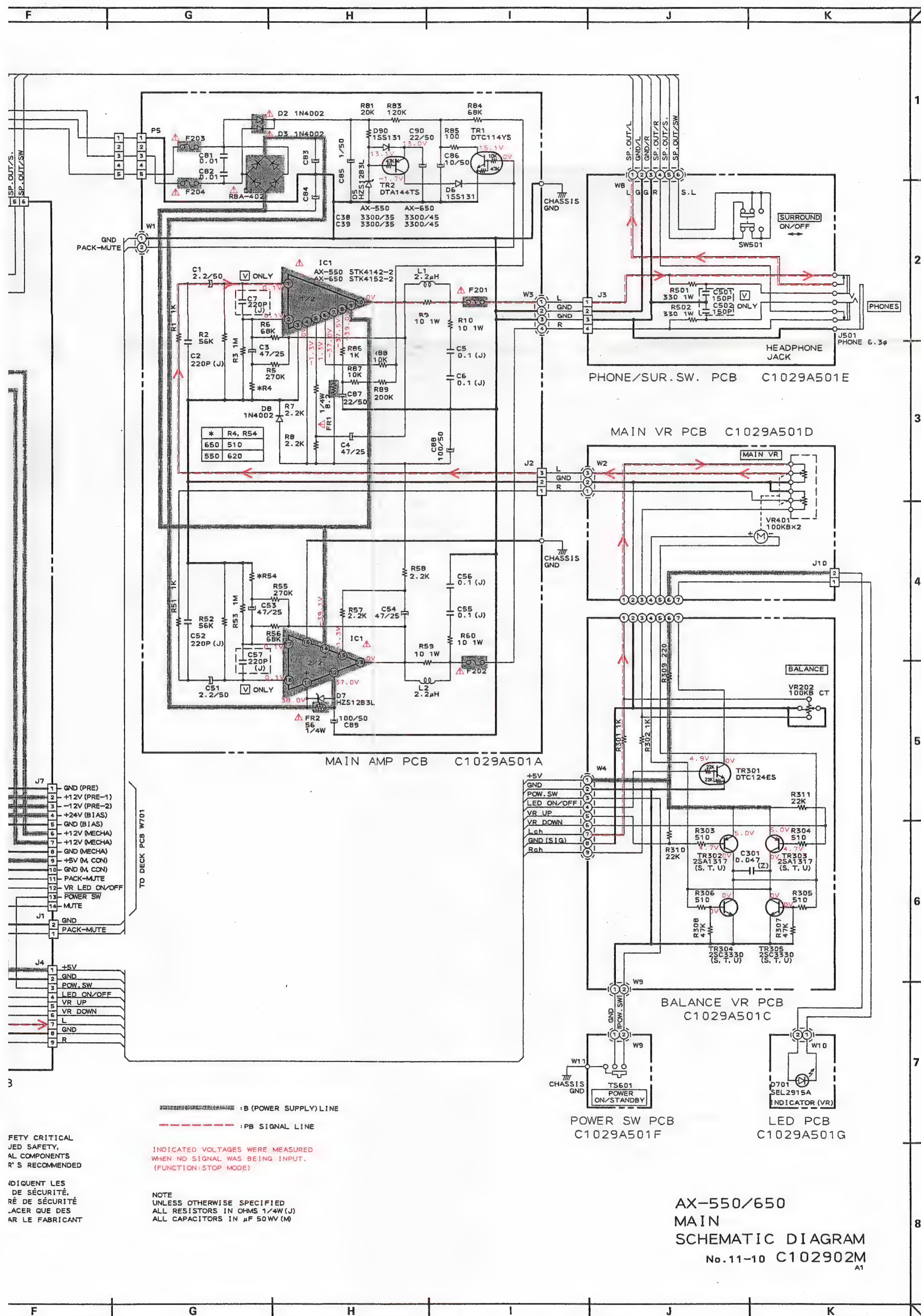
ER DEPENDING ON MODEL NUMBER.
SCHEMATIC DIAGRAMS FOR PERTAINING
FORMATION.

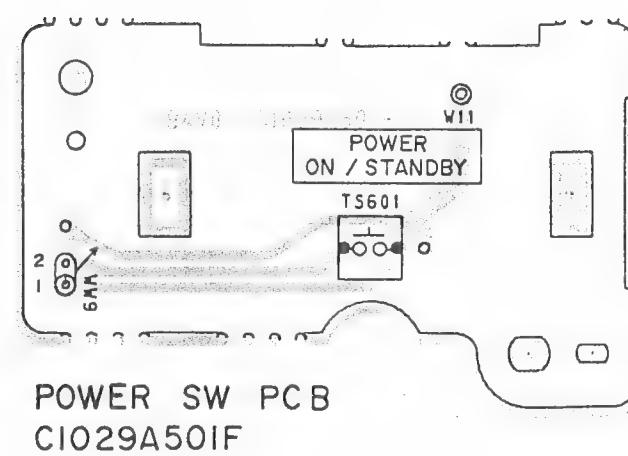
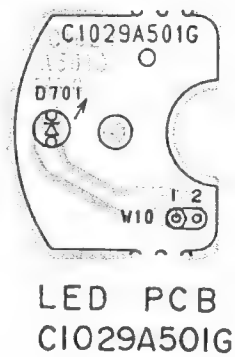
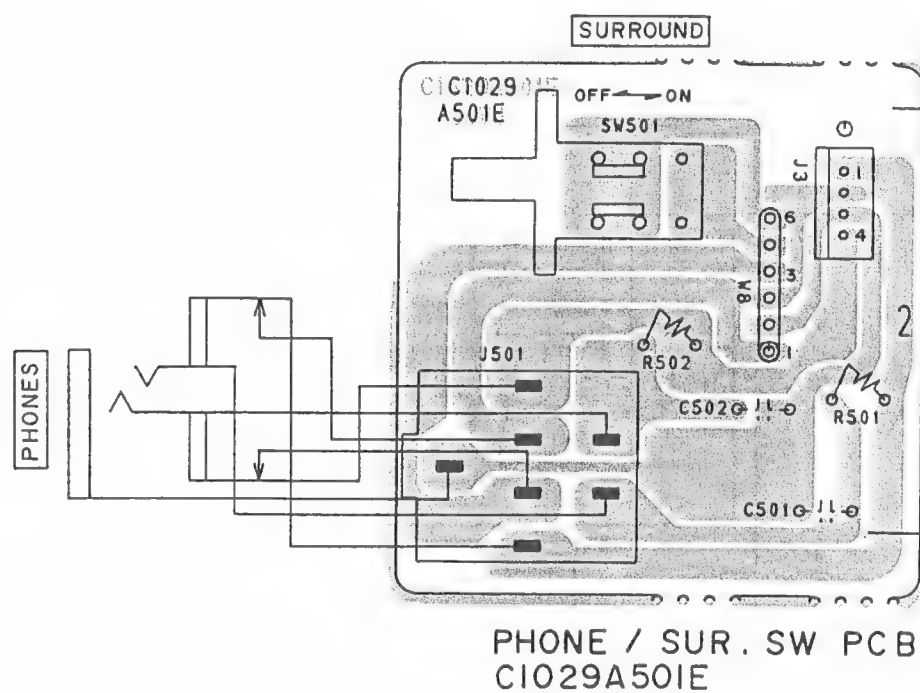
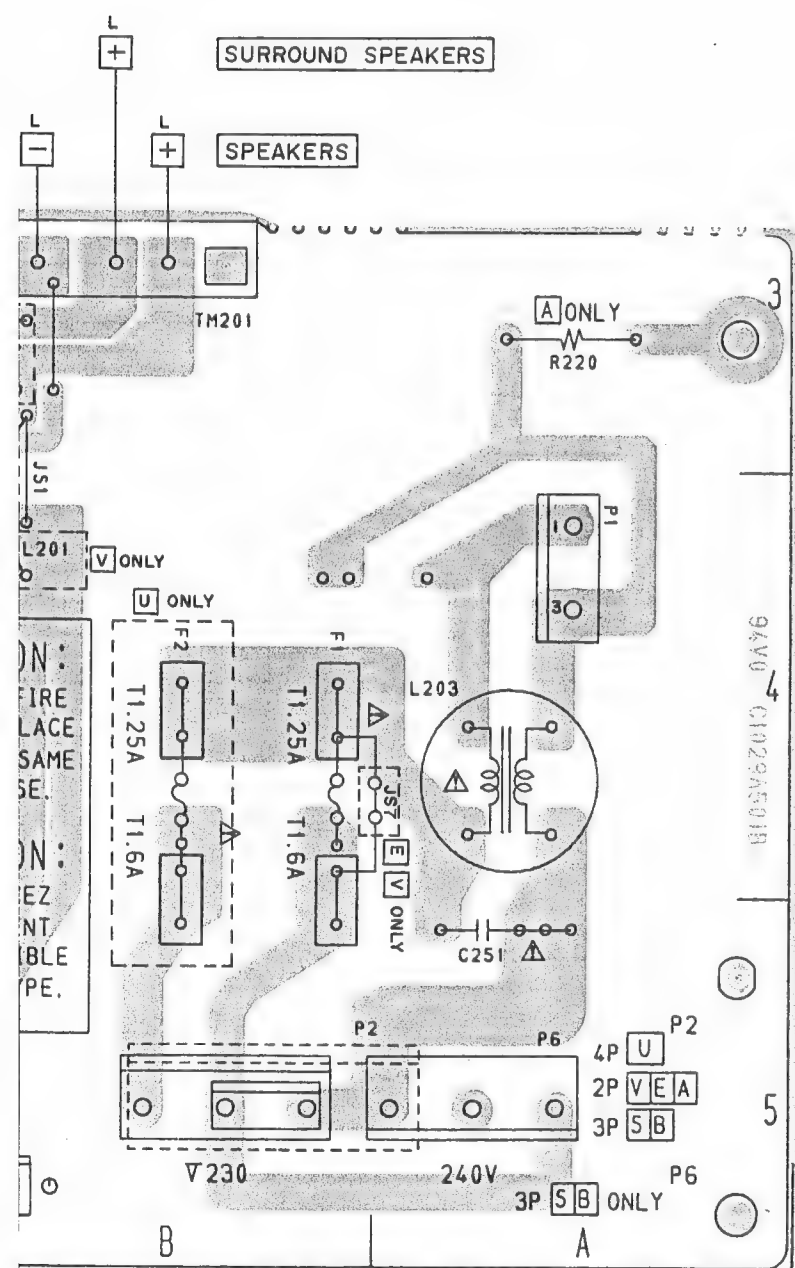
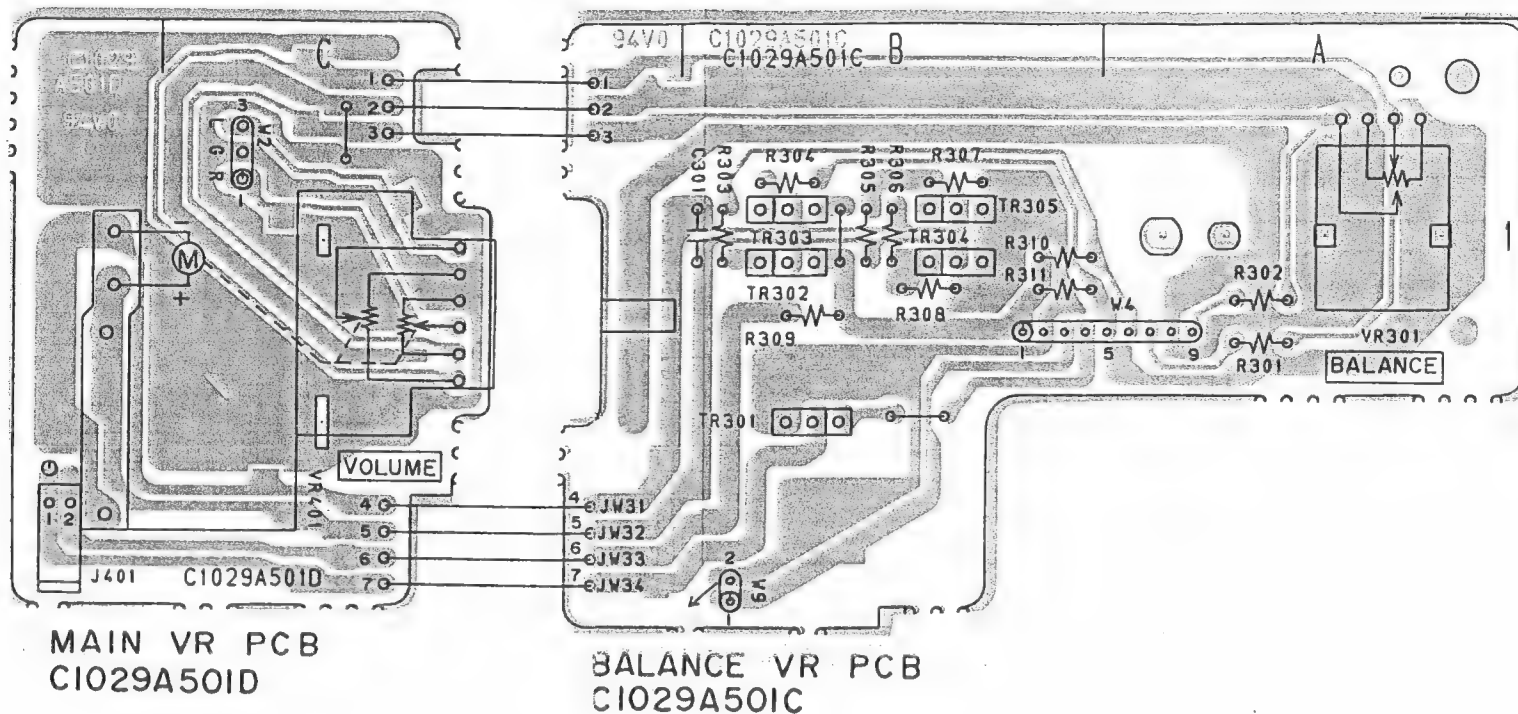


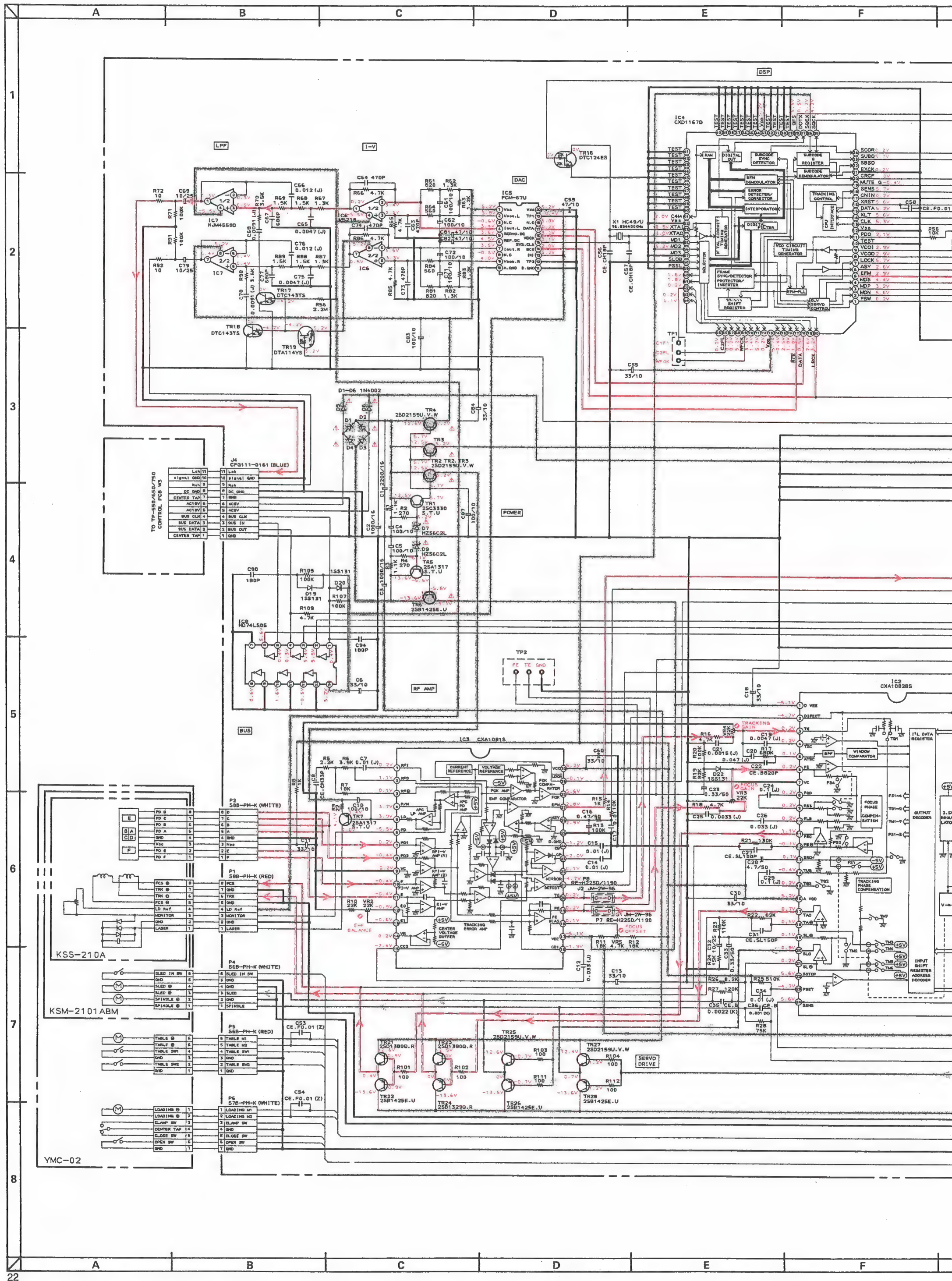
| FUSE No. | F1 | F2 | F101 | F102 | F103 | F104 | F201 | F202 | F203 | F204 |
|----------------|--------|--------|-------|-------|--------|--------|--------|--------|--------|--------|
| AX-650 [E] [V] | — | — | T1.6A | T1.6A | T630mA | T630mA | T3.15A | T3.15A | T4.0A | T4.0A |
| AX-650 [B] [S] | T1.6A | — | T1.6A | T1.6A | T630mA | T630mA | T3.15A | T3.15A | T4.0A | T4.0A |
| AX-650 [Q] | T1.6A | T1.6A | T1.6A | T1.6A | T630mA | T630mA | T3.15A | T3.15A | T4.0A | T4.0A |
| AX-550 [E] [V] | — | — | T1.6A | T1.6A | T630mA | T630mA | T2.5A | T2.5A | T3.15A | T3.15A |
| AX-550 [B] [S] | T1.25A | — | T1.6A | T1.6A | T630mA | T630mA | T2.5A | T2.5A | T3.15A | T3.15A |
| AX-550 [Q] | T1.25A | T1.25A | T1.6A | T1.6A | T630mA | T630mA | T2.5A | T2.5A | T3.15A | T3.15A |

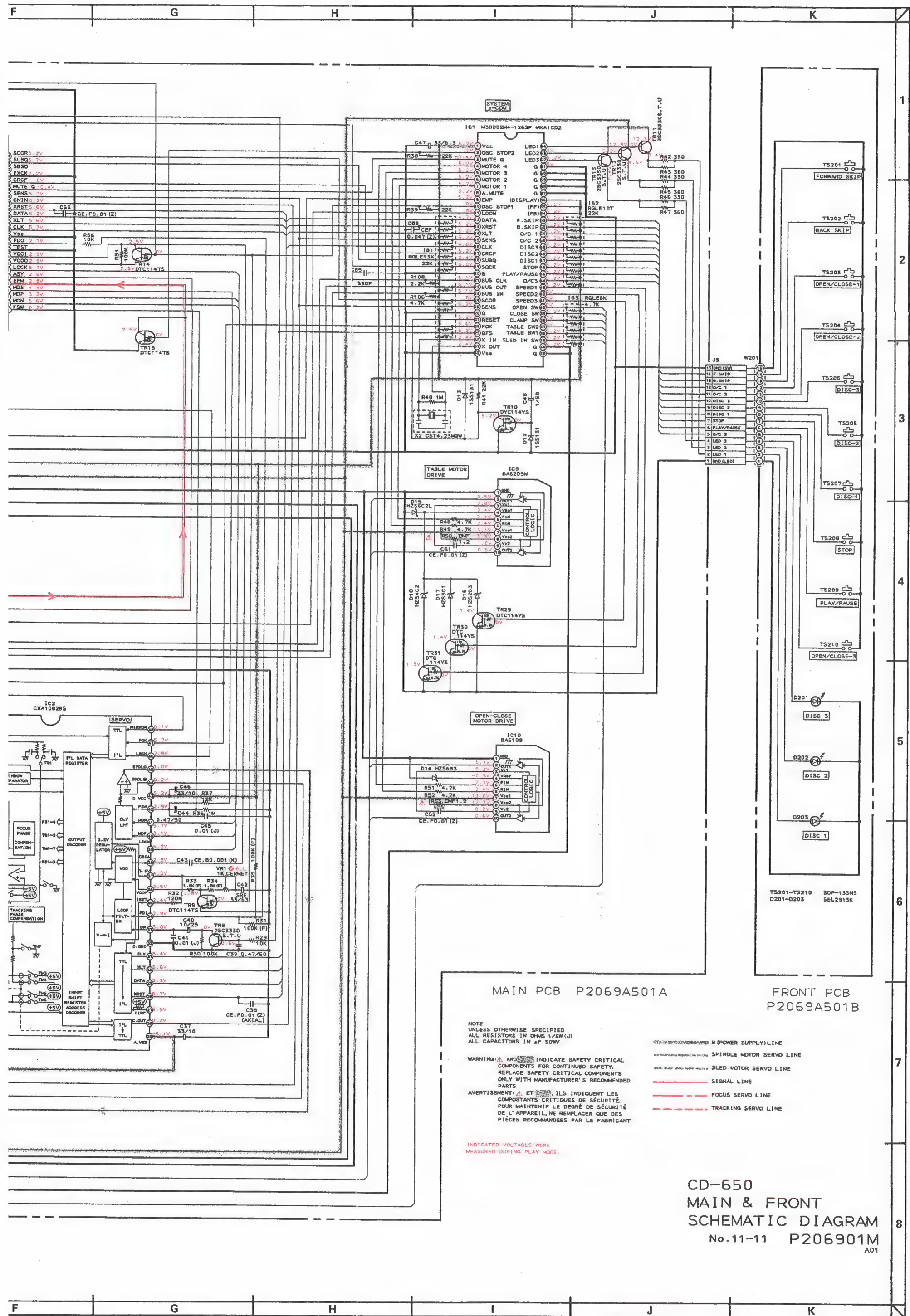
WARNING: Δ AND [symbol] INDICATE SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

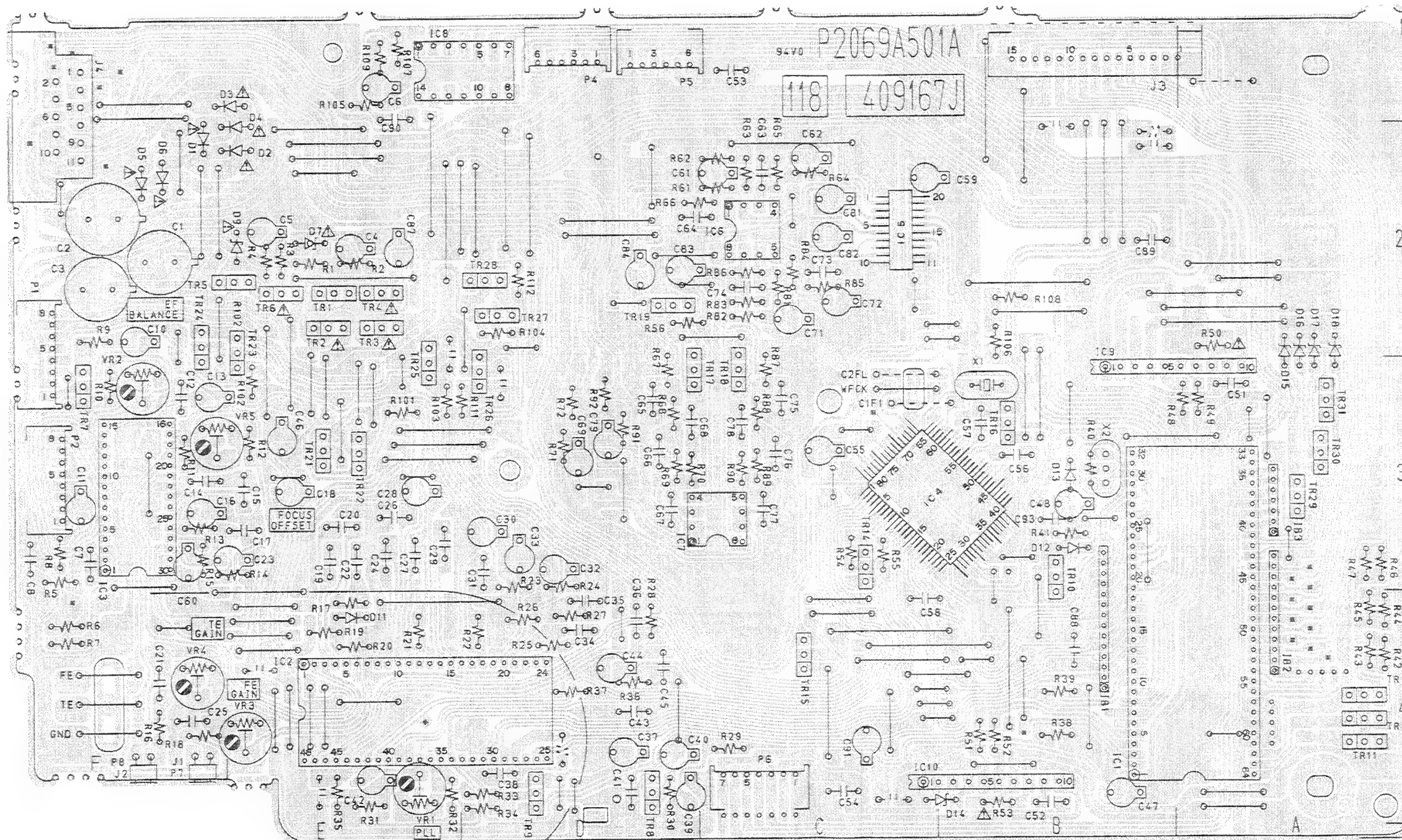
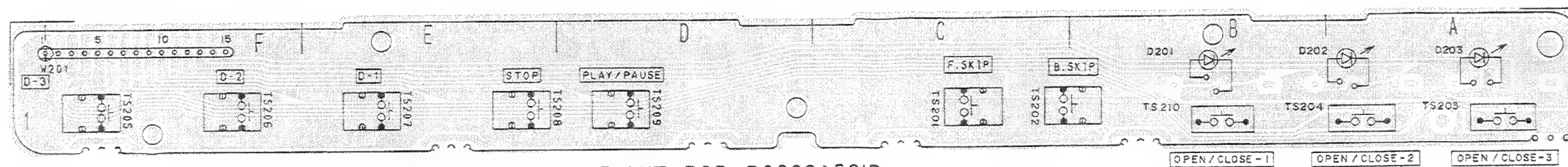
AVERTISSEMENT: Δ ET [symbol], ILS INDIQUENT LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.











PRINCIPAL PARTS LOCATION

| ICs | |
|------|--------|
| IC1 | 3,4A,B |
| IC2 | 4D,E |
| IC3 | 3F |
| IC4 | 3B,C |
| IC5 | 2C |
| IC6 | 2C |
| IC7 | 3C,D |
| IC8 | 1D,E |
| IC9 | 3A,B |
| IC10 | 4B,C |

CONNECTORS

| | |
|----|------|
| P1 | 2,3F |
| P2 | 3F |
| P4 | 1D |
| P5 | 1D |
| P6 | 4C |
| P7 | 4F |
| P8 | 4F |

TRANSISTORS

| | |
|------|------|
| TR1 | 2E |
| TR2 | 2E |
| TR3 | 2E |
| TR4 | 2E |
| TR5 | 2E |
| TR6 | 2E |
| TR7 | 3F |
| TR8 | 4D |
| TR9 | 4D |
| TR10 | 3B |
| TR11 | 4A |
| TR12 | 4A |
| TR13 | 4A |
| TR14 | 3C |
| TR15 | 4C |
| TR16 | 3B |
| TR17 | 3D |
| TR18 | 3C |
| TR19 | 2D |
| TR21 | 3E |
| TR22 | 3E |
| TR23 | 2,3E |
| TR24 | 2F |
| TR25 | 2,3E |
| TR26 | 3D |
| TR27 | 2D |
| TR28 | 2D |
| TR29 | 3A |
| TR30 | 3A |
| TR31 | 3A |

WARNING: Δ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS.

AVERTISSEMENT: Δ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT.

LC866008A (TP-650 FLD & GEQ CONTROL MI-COM)

| Pin No. | PORT NAME | I/O | DESCRIPTION |
|---------|----------------|-----|--|
| 1 | BUS (DO) | O | Bus data output for tuner |
| 2 | BUS (DI) | I | Bus data input from tuner |
| 3 | BUS (CLK) | I | Bus clock input from tuner |
| 4 | DATA | O | Electric VR control data output |
| 5 | CLOCK | O | Electric VR control clock output |
| 6 | | | Not used |
| 7 | MUTE | O | Mute control output (H:mute on) |
| 8 | FLD OFF | O | FLD / control output (H:FLD on) |
| 9 | TEST | | Not used |
| 10 | RST | I | Reset input |
| 11 | XT 1 | | GND |
| 12 | XT 2 | | Not used |
| 13 | VSS | | GND |
| 14 | CF 1 | | X'tal OSC |
| 15 | CF 2 | | X'tal OSC |
| 16 | VDD | | +5V |
| 17 | A/D 1 | I | 63Hz /160Hz / 400Hz /1kHz A/D convert input |
| 18 | A/D 2 | I | 2.5kHz / 6.3kHz /16kHz / total A/D convert input |
| 19 | GND | | GND |
| 20 | GND | | GND |
| 21 | G-EQ | I | G-EQ control mode on/off input |
| 22 | MODE | I | Mode change input |
| 23 | CHARACTER UP | I | To move sound character |
| 24 | CHARACTER DOWN | I | Not used |
| 25 | DIGIT 16 | O | Digit data output |
| 26 | DIGIT 15 | O | |
| 27 | DIGIT 14 | O | |
| 28 | DIGIT 13 | O | |
| 29 | DIGIT 12 | O | |
| 30 | DIGIT 11 | O | |
| 31 | DIGIT 10 | O | |
| 32 | DIGIT 9 | O | |
| 33 | DIGIT 8 | O | |
| 34 | DIGIT 7 | O | |
| 35 | DIGIT 6 | O | |
| 36 | DIGIT 5 | O | |
| 37 | DIGIT 4 | O | |
| 38 | DIGIT 3 | O | |
| 39 | DIGIT 2 | O | |
| 40 | DIGIT 1 | O | |
| 41 | VDD | | +5V power supply |
| 42 | VP | | -40V |
| 43 | SEGMENT 1 | O | Segment data output |
| 44 | SEGMENT 2 | O | |
| 45 | SEGMENT 3 | O | |
| 46 | SEGMENT 4 | O | |
| 47 | SEGMENT 5 | O | |
| 48 | SEGMENT 6 | O | |
| 49 | SEGMENT 7 | O | |
| 50 | SEGMENT 8 | O | |
| 51 | SEGMENT 9 | O | |
| 52 | SEGMENT 10 | O | |
| 53 | SEGMENT 11 | O | |
| 54 | SEGMENT 12 | O | |
| 55 | SEGMENT 13 | O | |
| 56 | SEGMENT 14 | O | |
| 57 | | | Not used |
| 58 | | | |
| 59 | | | |
| 60 | | | |
| 61 | | | |
| 62 | | | |
| 63 | ANA. SW 1 | | Band frequency control output |
| 64 | ANA. SW 2 | | Band frequency control output |

M38002M4 (CD-650 SYSTEM CONTROL MI-COM)

| Pin No. | PORT NAME | I/O | DESCRIPTION |
|---------|--------------|-----|---|
| 1 | VCC | | +5V power supply |
| 2 | OSC STOP 2 | O | Oscillator control output for main CLOCK, VCO and PLL. |
| 3 | MUTE G | O | Output to stop audio data H:mute on |
| 4 | MOTOR 4 | O | TRAY control output |
| 5 | MOTOR 3 | O | TRAY control output |
| 6 | MOTOR 2 | O | TRAY rotation control output |
| 7 | MOTOR 1 | O | TRAY rotation control output |
| 8 | AUDIO MUTE | O | Not used |
| 9 | EMP | O | Emphasis control output |
| 10 | OSC STOP 1 | O | Oscillator control output for main CLOCK, VCO and PLL. |
| 11 | LDON | O | Laser diode ON/OFF control output H:laser off |
| 12 | DATA | O | Command data output |
| 13 | XRST | O | Reset signal output |
| 14 | XLT | O | Latch signal output |
| 15 | SENS | I | Auto sequence end detection input |
| 16 | CLK | O | Clock signal output |
| 17 | CRCF | I | Input to detect Sub Code - Q CRC check |
| 18 | SUBQ | I | Input to detect Sub Code - Q data |
| 19 | SQCK | O | Reading clock out of Sub Code Q data |
| 20 | GND | | GND |
| 21 | CD CLK IN | I | Bus clock from TUNER input |
| 22 | BUS OUT | O | Bus data output to TUNER |
| 23 | CD DATA IN | I | Bus data input from TUNER |
| 24 | SCOR | I | Sub code - Q data direct input |
| 25 | SENS | I | Auto sequence end detection input |
| 26 | GND | | GND |
| 27 | RESET | I | Reset input |
| 28 | FOK | I | Focus lock detection input H:Focus lock |
| 29 | GFS | I | Input to detect PLL lock condition H:lock on |
| 30 | X IN | I | Main clock input |
| 31 | X OUT | O | Main clock output |
| 32 | VSS | | GND |
| 33 | GND | | GND |
| 34 | GND | | GND |
| 35 | IN SW | I | Input to detect pick up position |
| 36 | LU SW 1 | I | Input to detect disc rotation position |
| 37 | LU SW 2 | I | Input to detect disc rotation position |
| 38 | CLAMP SW | I | Input to detect disc clamp position |
| 39 | CLOSE SW | I | Input to detect tray close position |
| 40 | OPEN SW | I | Input to detect tray open position |
| 41 | SPEED 3 | O | TRAY rotation control output |
| 42 | SPEED 2 | O | TRAY rotation control output |
| 43 | SPEED 1 | O | TRAY rotation control output |
| 44 | OPEN/CLOSE 3 | I | Input to open or close and rotate TRAY |
| 45 | PLAY/PAUSE | I | Input to change mode to PLAY from STOP and PAUSE |
| 46 | STOP | I | Input to stop every movement and return PICK UP to start position |
| 47 | DISC 1 | I | Input to play DISK 1 |
| 48 | DISC 2 | I | Input to play DISK 2 |
| 49 | DISC 3 | I | Input to play DISK 3 |
| 50 | OPEN/CLOSE 2 | I | Input to open or close and rotate TRAY |
| 51 | OPEN/CLOSE 1 | I | Input to open or close and rotate TRAY |
| 52 | BS | I | To skip to next tune |
| 53 | FS | I | To skip to next tune |
| 54 | FB | I | Input for backward quick movement |
| 55 | FF | I | Input for forward quick movement |
| 56 | DISPLAY | I | Display control input |
| 57 | GND | | GND |
| 58 | GND | | GND |
| 59 | GND | | GND |
| 60 | GND | | GND |
| 61 | GND | | GND |
| 62 | LED 3 | O | LED control output |
| 63 | LED 2 | O | LED control output |
| 64 | LED 1 | O | LED control output |

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| Pin No. | PORT NAME | I/O | DESCRIPTION |
|---------|---------------|-----|---|
| 1 | FB 2 | O | For switching function output |
| 2 | FA 2 | O | For switching function output |
| 3 | VR UP | O | Main VR control (UP) output H:UP |
| 4 | VR DOWN | O | Main VR control (DOWN) output H:DOWN |
| 5 | FB 3 | O | SUPER BASS control output |
| 6 | DECK CLK | O | DECK bus clock output |
| 7 | DECK DATA OUT | O | DECK bus data output |
| 8 | DECK DATA IN | I | DECK bus data input |
| 9 | FA 3 | O | SUPER BASS control output |
| 10 | CD CLK | O | CD bus clock output |
| 11 | CD DATA OUT | O | CD bus data output |
| 12 | CD DATA IN | I | CD bus data input |
| 13 | G-EQ CLK | O | G-EQ bus clock output |
| 14 | G-EQ DATA OUT | O | G-EQ bus data output |
| 15 | G-EQ DATA IN | I | G-EQ bus data input |
| 16 | FC 1 | O | For switching function input |
| 17 | FB 1 | O | For switching function input |
| 18 | FA 1 | O | For switching function input |
| 19 | FLD OFF | O | FL display off output L:OFF |
| 20 | POWER LED | O | Power led control output |
| 21 | AMP MUTE | O | Pre amp mute control output H:MUTE ON |
| 22 | POWER MUTE | O | Power amp mute control output L:MUTE ON |
| 23 | POWER LED | O | Power LED control output |
| 24 | FM A/M | O | FM auto/mono control output |
| 25 | POWER DOWN | I | Back up dtection input |
| 26 | REMOCON | I | REMOCON signal dtection input |
| 27 | RESET | I | Reset input |
| 28 | XC IN | I | X'tal OSC |
| 29 | XC OUT | O | |
| 30 | X IN | I | |
| 31 | X OUT | O | |
| 32 | VSS | | GND |
| 33 | TUNER MUTE | O | Mute control output H:MUTE ON |
| 34 | PLL STRQ | O | PLL control output |
| 35 | PLL STIN | I | PLL control input |
| 36 | PLL CE | O | PLL control output |
| 37 | PLL CLK | O | PLL control output |
| 38 | PLL DATA | O | PLL control output |
| 39 | K 1 | I | Key scan input 1 |
| 40 | K 0 | I | Key scan input 0 |
| 41 | SB | O | Super bass led control output |
| 42 | SD | O | Super direct led control output |
| 43 | DIG 9 | O | Digit data output |
| 44 | DIG 8 | O | |
| 45 | DIG 7 | O | |
| 46 | DIG 6 | O | |
| 47 | DIG 5 | O | |
| 48 | DIG 4 | O | |
| 49 | DIG 3 | O | |
| 50 | DIG 2 | O | |
| 51 | DIG 1 | O | |
| 52 | DIG 0 | O | |
| 53 | SEG 19 | O | Segment data output |
| 54 | SEG 18 | O | |
| 55 | SEG 17 | O | |
| 56 | SEG 16 | O | |
| 57 | SEG 15 | O | |
| 58 | SEG 14 | O | |

| Pin No. | PORT NAME | I/O | DESCRIPTION |
|---------|--------------|-----|-------------------------------|
| 59 | SEG 13 | O | Segment data output |
| 60 | SEG 12 | O | |
| 61 | SEG 11 | O | |
| 62 | SEG 10 | O | |
| 63 | SEG 9 | O | |
| 64 | SEG 8 | O | |
| 65 | SEG 7 | O | |
| 66 | SEG 6 | O | |
| 67 | SEG 5 | O | |
| 68 | SEG 4 | O | |
| 69 | SEG 3 | O | |
| 70 | SEG 2 | O | |
| 71 | SEG 1 | O | |
| 72 | SEG 0 | O | |
| 73 | VCC | | +5V |
| 74 | VEE | | -Vp |
| 75 | AVSS | | GND |
| 76 | VREF | | +5V |
| 77 | TUNED | I | TUNED display input |
| 78 | STEREO | I | STEREO display input |
| 79 | CD POWER OFF | O | CD power off output H:OFF |
| 80 | FC 2 | O | For switching function output |

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| Pin No. | PORT NAME | I/O | DESCRIPTION |
|---------|----------------------|-----|---|
| 1 | PLAY-II | O | Input detect head position |
| 2 | PACK-II | O | Input detect pack |
| 3 | AR-REV-II | O | Input inhibit reverse recording |
| 4 | 120μ/70μ-II | O | Input detect 120μs/70μs tape L:120μs |
| 5 | AR-FWD-II | O | Input inhibit forward recording |
| 6 | PLAY I | O | Input detect head position |
| 7 | PACK I | O | Input detect pack |
| 8 | 120μ/70μ-I | O | Input detect 120μs/70μs tape L:120μs |
| 9 | REEL-II | O | Reel pulse input |
| 10 | REEL-I | O | Reel pulse input |
| 11 | x 1 PB 70μs | O | x 1/ x 2 speed playback EQ switching output |
| 12 | x 2 PB 70μs | O | x 2 speed playback EQ switching output |
| 13 | PB MUTE | O | Playback mute control output |
| 14 | CROSS | O | CROSS EDIT control output |
| 15 | DATA IN | I | Bus serial data input |
| 16 | DATA OUT | O | Bus serial data output |
| 17 | CLK IN | I | Bus clock input |
| 18 | BOP | I | Music interval detection signal input H:Music interval |
| 19 | PB TAPE I | O | TAPE I playback switching control output |
| 20 | PB TAPE II | O | TAPE II playback switching control output |
| 21 | HEAD REC/PB | O | HEAD recording/playback control output H:playback |
| 22 | MECHA POWER | O | Capstan motor stop input |
| 23 | MOTOR x 1/ x 2-I | O | Capstan motor x 1/ x 2 speed switching output L: x 1 H: x 2 |
| 24 | PL COMMON | O | Plunger ON/OFF control output |
| 25 | PL-I | O | Plunger ON/OFF control output |
| 26 | x 2 PB PEAK | O | For x 1/ x 2 speed playback peaking frequency switching |
| 27 | MOTOR x 1/ x 2-II | O | Capstan motor x 1/ x 2 speed switching output L: x 1 H: x 2 |
| 28 | PL-II | O | Plunger ON/OFF control output |
| 29 | FWD LAMP-II | O | TAPE II ► LAMP control output |
| 30 | FWD LAMP-I | O | TAPE I ► LAMP control output |
| 31 | VCC | | +5V power supply |
| 32 | VDD | | +5V power supply |
| 33 | x 1 DUBBING LAMP | O | x 1 DUBBING LAMP control output |
| 34 | REV LAMP-I | O | TAPE I ◄ LAMP control output |
| 35 | REC PAUSE LAMP | O | REC PAUSE LAMP control output |
| 36 | x 2 DUBBING LAMP | O | x 2 DUBBING LAMP control output |
| 37 | REV LAMP-II | O | TAPE II ◄ LAMP control output |
| 38 | TAPE II LAMP | O | TAPE II LAMP control output |
| 39 | TAPE I LAMP | O | TAPE I LAMP control output |
| 40 | MAIN VR LAMP | O | MAIN VR LAMP control output |
| 41 | TAPE II | I | TAPE II operation input L:ON |
| 42 | TAPE I | I | TAPE I operation input L:ON |
| 43 | x 1 DUB | I | x 1 SPEED DUBBING L:ON |
| 44 | x 2 DUB | I | x 2 SPEED DUBBING L:ON |
| 45 | RESET | I | Reset signal input |
| 46 | x 2 | O | Main clock output |
| 47 | x 1 | I | Main clock input |
| 48 | REW | I | Command rewind tape play L:ON |
| 49 | REV | I | Command reverse tape play L:ON |
| 50 | STOP | I | Command stop mechanism movement L:ON |
| 51 | FWD | I | Command forward tape play L:ON |
| 52 | FF | I | Command fast forward tape play L:ON |
| 53 | REC PAUSE | I | REC PAUSE command input L:ON |
| 54 | AUTO MUTE | I | AUTO MUTE command input L:ON |
| 55 | POWER SW | I | Power switch ON/OFF command input |
| 56 | PACK MUTE | O | PACK MUTE control output |
| 57 | DOLBY REC/PB | O | DOLBY recording/playback control output |
| 58 | REC MUTE | O | REC MUTE control output L:MUTE ON |
| 59 | x 2 REC PEAKING | O | For x1/ x 2 speed recording peaking frequency switching |
| 60 | REC CrO ₂ | O | CrO ₂ tape recording EQ switching output H:CrO ₂ tape |
| 61 | FADE | O | FADE EDIT control output |
| 62 | OSC | O | Bias OSC control output H:OSC ON |
| 63 | x1 REC PEAKING | O | For x1/ x 2 speed recording peaking frequency switching H: x1 |
| 64 | VSS | | GND |